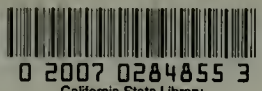
★
cTN
575
J8
no. 7

Justinian Caire Company.
Illustrated price list.

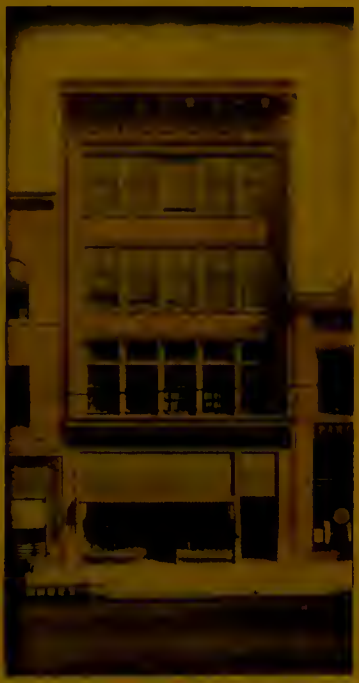

0 2007 0284855 3
California State Library

Call No. cTN
575
J8
no.7

Illustrated Catalogue and Price List

of the

JUSTINIAN CAIRE COMPANY



Manufacturers, Importers, Dealers

Assayers' and Chemists' Materials

Laboratory Supplies, Chemicals

573-575 MARKET STREET

SAN FRANCISCO, CALIFORNIA

Greiner & Friedrichs' Resistance Glass

Trade  Mark

The Best Material for Chemical Glassware

Catalogue No. 7

Illustrated Price List

of

Justinian Caire Company

ESTABLISHED 1851 INCORPORATED 1895

IMPORTERS, MANUFACTURERS
AND DEALERS IN

Assayers' Materials, Laboratory Glassware, Chemicals and Reagents, Scientific Apparatus Books, etc., Battery Screens

573-575 Market Street
SAN FRANCISCO, CAL.

SPECIALTIES

Calkins' Assay Office Appliances

Furnaces, Burners, Crushers, Rolls
Cupel Machines, Grinders, Samplers

Zinc Shavings

Greiner & Friedrichs ℞

Resistance Glassware

Cyanide of Potassium

Cyanide of Sodium

One Stamp Mill

Grasselli Chemical Company

Pure Acids

Merck's Pure Chemicals

Baker's Analyzed Chemicals

To Our Patrons

We take great pleasure in handing you this, our Seventh Illustrated Catalogue and Price List of Assayers' and Chemists' Materials, Mill Supplies and Glassware, and beg to call your attention to a large list of new articles fully illustrated.

We have endeavored to make this catalogue as complete as possible and, when new articles are introduced, we will distribute additional sheets to enable our patrons to select the very latest apparatus. We continue to use the alphabetical order because it is the simplest and most convenient for prompt reference.

We always have in stock a complete list of Pure Chemicals of the best makers. Our Crucibles, Glass and Porcelain Ware, etc., we import direct by sailing vessels from the best manufacturers, thus obtaining the lowest rates of freight and we can therefore insure uniformity of quality and the lowest prices consistent with good quality. We allow a liberal discount on many articles purchased in original packages.

We are sole agents for Greiner & Friedrich's  Resistance Glass. We are selling agents for the Calkins Company of Los Angeles Specialties and carry a full line of the same in stock. They are the result of years of hard study as to the needs of the assayer and millman, especially designed for them and are the most efficient and economical appliances offered on the market to this day.

We cannot guarantee prices; we can assure our customers that we shall give them at all times the benefit of the best market rates.

Since January 1896 we have taken charge of the business heretofore conducted by the late Justinian Caire who established this firm in 1851. We can therefore guarantee our customers that the same attention will be paid to their orders in the future as was paid in the past; the record of sixty years of confidence on the part of the mining community will be a stimulus to endeavor to enjoy it in the future.

We hope to be favored with your continued orders and thanking you for past favors, we remain,

Yours very truly,

JUSTINIAN CAIRE COMPANY.

Terms

Terms are Net Cash unless otherwise stated.

No goods sold to strangers unless order is accompanied by a remittance or good references.

No goods sent C. O. D. unless we receive a payment on account to meet possible return express charges.

We make no charge for packing except where special packing is required and this is charged at cost.

We do not insure safe transportation of goods. Our goods are packed by experienced hands and we cannot guarantee against rough handling on the part of the transportation companies' employees. Fragile articles should not be sent by mail owing to the great risk of breakage.

We always allow any just claim in regard to quality and price of goods shipped, but we must be advised by mail before hand of an intended return of goods, so that we may make a proper disposition of the articles in question to avoid excessive return expenses. *Goods purchased outside* at the request of our patrons *will not be taken back* unless agreement to that effect is made before shipment.

We are always prepared to specially import articles for the use of schools and other institutions under the *duty free* clause of the United States Customs regulations.

Always send special shipping directions, otherwise we will use our own discretion for the forwarding by the quickest and cheapest route and will not be responsible for any annoyance caused by our action.

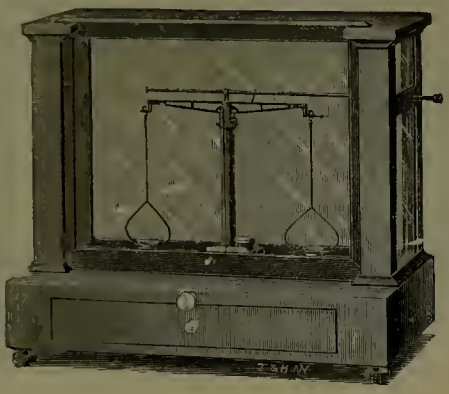
Remember that while prices in this catalogue cancel all previous quotations, these prices are subject to market fluctuations. *Prices are not guaranteed.*

Explosive articles, acids, gasoline, and other inflammable articles cannot be sent by mail or express.

Balances—Assay

Note.—All our Assay and Analytical Balances are provided free with a set of glass supports, which give solidity to the scale case. We also give one-half dozen watch glasses, two camel's-hair pencil bursbes, one flat camel's-hair brush, and one pair of pincers. Riders are furnished free with balances.

These balances are always sold **without weights,** unless otherwise noted.

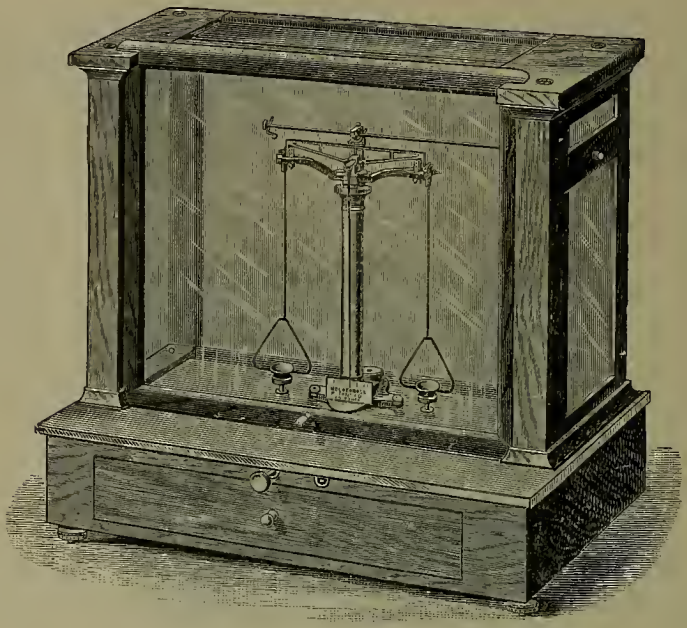


501. **Becker's No. 1 A—Button Balance.**—With apparatus for rider. The rider can be placed on center of beam and used from the 0 point. Needle deviates 20 divisions on scale for 1 milligramme. Can be charged up with 25 grammes, and with a 2-milligramme rider will read to 1/10 milligramme. Has steel knife edges resting upon agate plants.

Price, without weights$65 00

502. **Becker's No. 2, Portable.**—In polished case, 9 inches long, 9¾ inches high, 3 inches deep, with counterpoised front sliding door. Packed in light box with strap for carrying; weight, all boxed, 4½ lbs. Needle deviates 20 divisions on the scale for 1 milligramme. Takes a 2-milligramme rider, which reads 1/10 milligramme. With an apparatus for rider and set of weights from 1 platinum gramme to 1 milligramme.

Price, with weights$75 00



504

504. **Becker's No. 4—Improved Short Beam.**—In French polished mahogany and glass case, counterpoised sliding front, with glass top to admit more light on rider. All parts of the balances are mounted and fastened on plate glass, ¼ inch thick, so that nothing can get out of order through warping of the wood. All bearings are agate planes with agate knife edges, and the beam is graduated into 1/50 milligrammes and in such a manner that the rider can be placed on the center of the beam and used from the 0 point to either end of the beam. Needle deviates 50 divisions on scale for 1 milligramme. Beam is divided into 60 equal parts, taking a rider 1/10 milligramme, thus reading 1/50 milligramme or, with a rider of 1/1000 grain, it will read 1/5000 grain.

Price, without weights $135 00

511. **Troemner's No. 1—Button Balance.**—Beam of aluminum, 8¾ inches. Capacity, 2 grammes in each pan; sensibility, 1/20 milligramme. Bearings and edges of agate. Hangers of skeleton type, made of cold-drawn nickel silver wire; pans of aluminum. In French polished mahogany case, with sliding door, glass sides, back and front. Brass work finished with special acid-resisting lacquer.

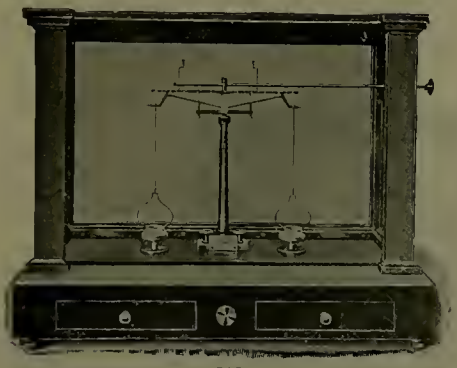
Price, without weights $55 00



512

512. **Troemner's No. 2.**—Beam of aluminum, 7½ inches long, made so that the rider can be placed at any point from 0 at the center to the last division on the beam which is directly over the end knife edge and represents the full weight of the rider used. Beam is divided into 50 divisions on the right-hand side of the beam. It is oxidized black with white divisions, making readings very clear. Beam and pan arrests are of the fall-away type; bearings are of agate, hangers of skeleton type and of nickel silver; pans of aluminum. Rider has full, clear sweep over graduated part of beam. Polished mahogany case, with counter-poised sliding door; brass parts polished with special acid-resisting lacquer. Capacity, 25 grammes; sensibility, 1/50 milligramme.

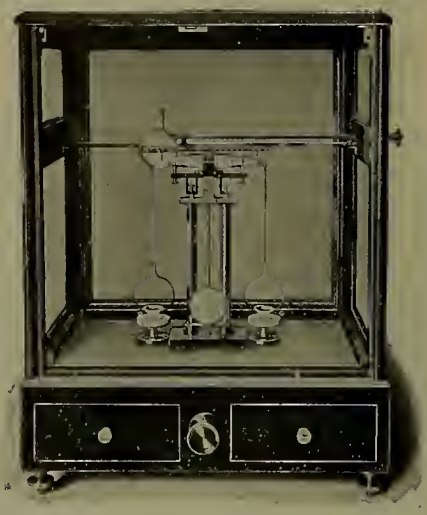
Price, without weights $80 00



513

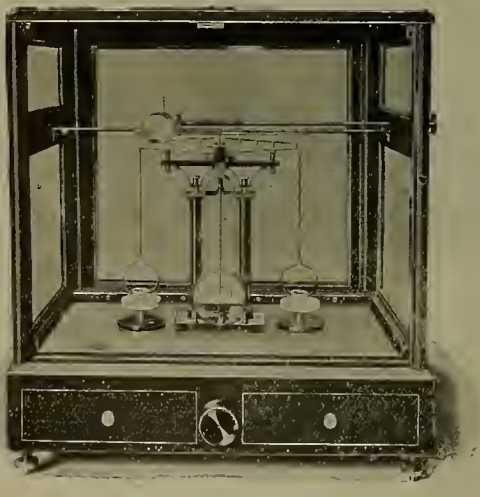
513. **Troemner's No. 3.**—Beam 7½ inches long, of a special alloy of aluminum. This balance is similar in construction and finish to the No. 2, just above described, but is much more delicate, as a ½ milligramme rider on the full divisions, or a 1 milligramme rider on the one-half divisions of the beam, will read to 1/100 milligramme.

Price, without weights $95 00



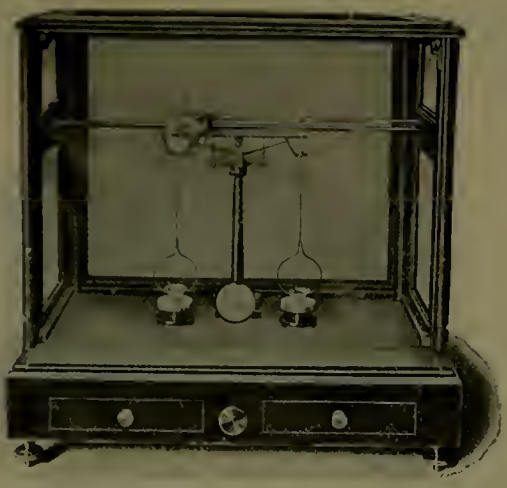
514

514. Troemner's No. 8.—Of the double-column type, which, by the necessary construction at the head, allows of that form by which the beam can be held rigid when at rest and will not move when the adjusting screws are worked. Beam is 5 inches long, sawed from a piece of cold-rolled aluminum alloy, being light yet of great stability over a wide range of temperature changes. The rider can sweep over the whole beam, which is oxidized black with 100 white divisions on each side of center knife edge. With a ½ milligramme rider on the divisions of the beam reading of 1/200 milligramme will be shown. Fitted with sprocket wheel adjusting screws. These balances are finished like those just described, having, besides, a black plate-glass base, levels at base of columns, lenses for reading indications of riders and of ivory index. Rider carriage of new traction type, with the smoothest of action.
Price, without weights $165 00



515

515. Troemner's No. 5, with 8-Inch Beam.—This balance is similar to the No. 8, but it has a beam of 8 inches and a sensibility of 1/400 milligramme. Price, without weights . . $175 00



516

516. **Troemner's No. 7, with a 5-Inch Beam.**—This balance is of the single-column type, with open beam, the beam and pan arrests being of the fall-away type, thus making action smooth and free from kicks. In all other respects it is similar to the preceding balances in construction and finish, with a sensibility of 1/400 milligramme.

Price, without weights $175 00

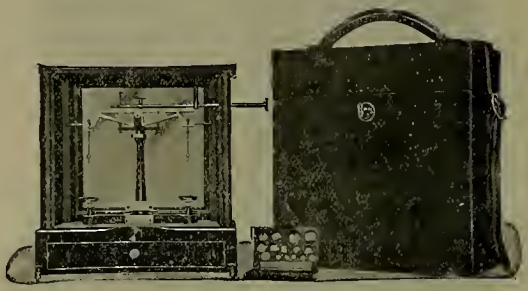


517

517. **Troemner's No. 4, with 4-Inch Beam.**—This balance is similar to the preceding in every respect, with the addition of gold plating to all the brass work, thus

making it acid-proof. It is sensible to 1/500 milligramme, and, when adjusted to a sensibility of 1/200 milligramme, is the most rapid weighing balance for accurate work.

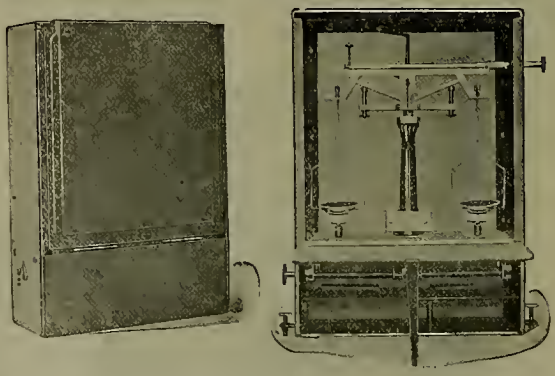
Price, without weights $250 00



518

518. **Troemner's No. 132, Portable—Button Balance.**—Beam, 4 inches; sensibility, 1/100 milligramme. This balance is the most practical portable balance made. It is similar in construction to the No. 3 balance. It is carried in a case 8½ inches by 5 by 9½ deep, weighing in all 6¾ lbs.; the case is fitted with lock and key, trunk strap and handle.

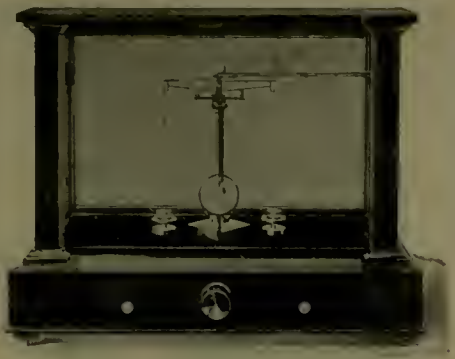
Price, with weights of from 1 gramme to 1/10 milligramme and riders. $70 00



519

519. **Troemner's Lilliputian Pocket Balance.**—With a beam of 3 inches, sensible to 1/50 milligramme, this is the smallest and lightest assay balance made. Size, 6¾ inches high, 4¾ inches wide and 2 inches deep. Weight, 20 ounces. Has locking apparatus to hold beam, so that it is not necessary to remove beam from fulcrum when transporting it. Fall-away beam and pan rests, vial levels, sprocket wheel adjusting apparatus, leveling feet. Black oxidized beam with 50 divisions on each side, rider sweeping across from 0 at center to the last division. Bearings of agate. With a set of weights of platinum from one gramme to 1/10 milligramme and riders.

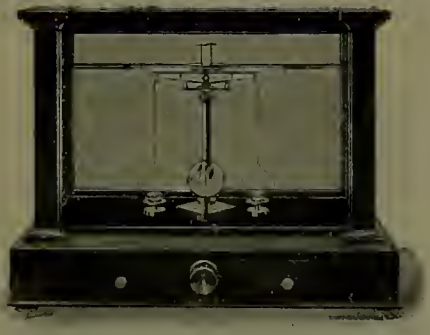
Price $80 00



526

526. **Ainsworth's Type J Button Balance.**—Beam, 6 inches; capacity, 2 grammes; sensibility, 1/50 milligramme. Beam graduated with rider apparatus on one side only; latest improved rider apparatus; agate bearings and knife edges; plate-glass sub-base; fall-away pan rests. In French polished mahogany case with counterpoised sliding doors.

Price, without weights $110 00

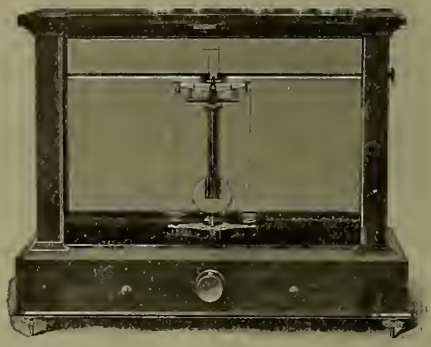


527

527. **Ainsworth's Type H Button Balance.**—Beam, 6 inches long; capacity, 2 grammes; sensibility 1/100 milligramme. Similar to the J, but with rider attached on both sides, the beam being divided into 50 parts on both sides of center, so that the rider can be placed at any point from 0 to the last division directly over the end edge. This balance is in polished mahogany case, with counterpoised sliding door and plate-glass sub-base.

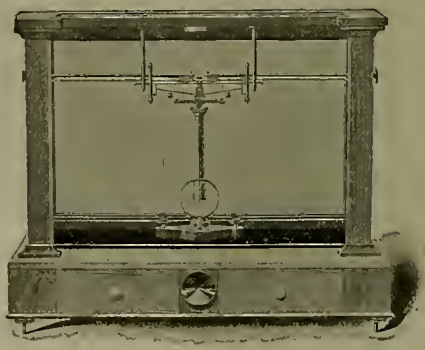
Price, without weights $135 00

528. **Ainsworth's F-B Button Balance.**—4-inch beam; capacity, 2 grammes; sensibility, 1/100 milligramme. A very rapid balance, with all the latest improvements, improved rider apparatus and base, fall-away pan rests, skeleton hangers, agate edges and bearings, plate-glass sub-base, etc.
Price, without weights $160 00



529

529. **Ainsworth's Type F A Button Balance.**—Beam 4 inches. Capacity 2 grammes, sensibility 1/200 milligramme. A very rapid balance with improved rider apparatus and base, star wheel adjustments, fall-away pan rests, skeleton hangers, plate-glass sub-base. The beam has 50 divisions on each side, unobstructed motion at the top for riders so that they can run from 0 at center to very end edge of beam. With a ½ milligramme rider a reading of 1/100 milligramme is shown and, by sibdividing with the eye, finer readings can be taken.
Price, without weights $200 00



530

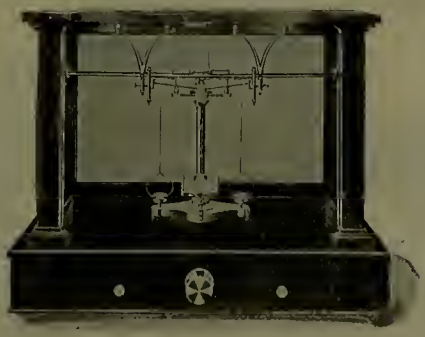
530. **Ainsworth's Type F Button Balance.**—Beam 4 inches. Capacity 1 gramme, sensibility 1/200 milligramme. This balance is a very rapid balance, in all respects similar to the preceding Type F A Balance, but having in addition a reading glass for the beam by which the readings are made very plain.
Price, without weights $225 00



531

531. **Ainsworth's Type D Button Balance.**—Beam 4 inches. Capacity 1 gramme, sensibility 1/400 milligramme. This balance is of the very best make and is unequaled for rapidity when adjusted to a sensibility of 1/200 milligramme. It has improved rider apparatus, star wheel adjustment, cylindrically ground reading glasses for beam and under skeleton hangers, improved base, agate edges and bearings, fall-away pan rests. Beam is of a special alloy, unobstructed at the top allowing rider full swing from 0 at center to the very end edge.

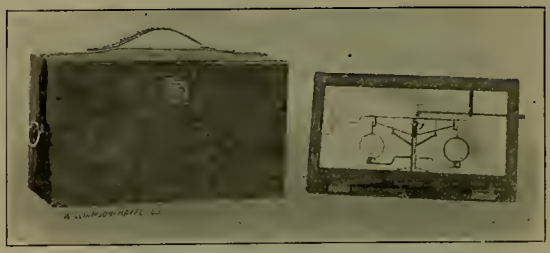
Price, without weights $300 00



532

532. **Ainsworth's Type C Precision Balance.**—Beam 5 inches, capacity 1 gramme, sensibility 1/500 milligramme. For particularly accurate weighings, such as control and umpire assays, and for scientific laboratories where the utmost accuracy is required. It has all the improvements mentioned in describing the Type D Balance.

Price, without weights $300 00



535

535. **Ainsworth's Type R Portable Button Balance.**—Beam 5 inches, sensibility 1/100 milligramme. An excellent portable balance. It has agate knife edges and bearings, fall-away pan rests, single rider apparatus and improved locking device for beam, rendering it unnecessary to remove beam for carrying. It is in polished mahogany case, and is contained in a carrying case 7x14x8 inches.

Price, without weights $75 00

537. **Ainsworth's Type R A Portable Balance.**—Similar to preceding, but with double rider apparatus.

Price, without weights $80 00



538

Ainsworth's Combined Portable Button and Pulp Balance.—The above illustration shows the type R (or R A) and N Portable Button and Pulp Balances together, in a single mahogany carrying case, making a very compact and convenient prospecting outfit. All parts of the Pulp Balance pack in the drawer of same, and the Button Balance has a special device for locking beam in position. Dimensions of case, 7x14x11 inches; weight of all, 9¾ lbs.

Type.

538. R Button and N Pulp Balances $90 00

539. R A Button and N Pulp Balances $95 00



540

540. **Ainsworth's Improved Multiple Rider Carrier.**—The above illustration shows the Ainsworth Improved Multiple Rider Carrier, as adapted to button balances, for weighing without the use of the ordinary weights as used in the pan.

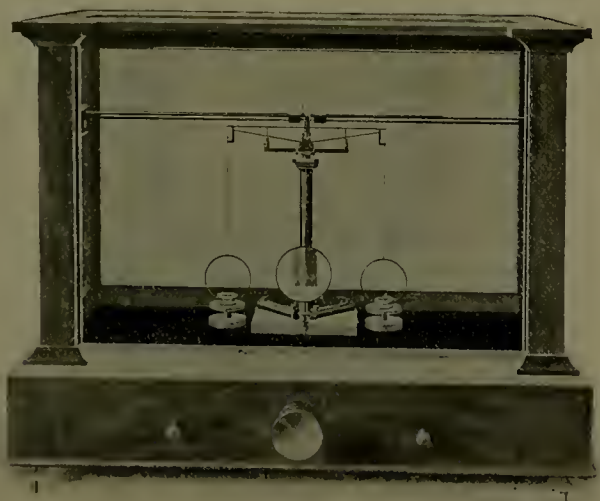
The riders maintain their original accuracy even after months of constant use, and, not being subjected to the continued handling with tweezers, do not become bent or broken.

Each rider is carried on a separate arm a short distance above the bar on the stirrup, and it is only necessary to move the number on the lower rod until it stands opposite the index pointer, and then revolve the rod slightly, which transfers the rider from the arm to the stirrup.

When through weighing, a glance at the numbers on the arms that are down shows the combined weight of the riders on the stirrup, and a slight turn resets all riders simultaneously. If, accidentally, or through carelessness, the carrier should be operated when the beam is swinging, there is no possibility of the arms striking the hanger and throwing the stirrup or breaking an edge.

Each rider has its individual arm for manipulating and cannot become misplaced, thereby causing an error in the following weighing. There are no special shaped riders to keep in mind, nor diagrams to refer to.

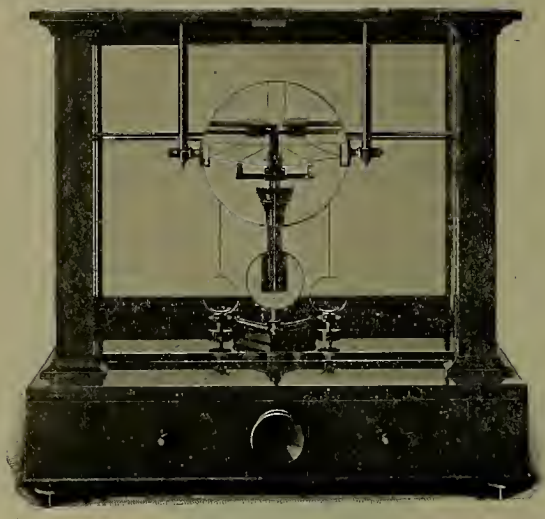
Price, when adapted to new balances. Each $25 00
Price, when attached to old balances. Each 30 00



546

546. **Thompson No. 20 Button Balance.**—Beam 6 inches, sensibility 1/50 milligramme. with agate bearings and knife edges, double rider attachment, plate-glass base, reading glass, fall-away pan rests, star adjustment, skeleton hangers, levels and leveling screws. In polished mahogany case with counterpoised sliding doors. Price, without weights $125 00

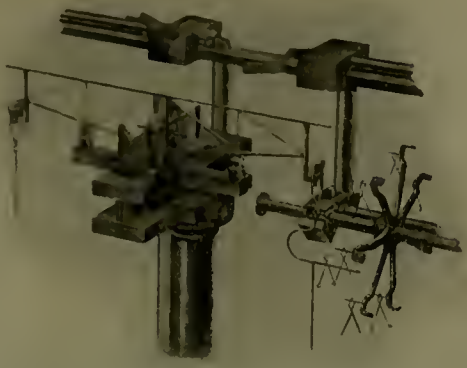
(See illustration, page 15.)



547

547. **Thompson's Style 7 Button Balance.**—Beam 4 inches, sensibility 1/200 milligramme. Agate bearings and knife edges; beam is made very light and braced, thus giving it great rigidity while adding to its quickness. Balance is gilded and has pin graduations, being divided into fifty divisions on each side of center, and the rider can thus be used from 0 at center to the very end edge, so that with a one milligramme rider the full milligramme can be weighed. Balance is provided with improved double rider attachment, fall-away pan rests, star adjustment, straight top beam, skeleton hangers, reading glass for ivory index, plate glass base, levels and leveling screws; has polished mahogany case with counterpoised door. The large magnifier gives the operator the advantage in reading of placing the rider of a 6-inch beam with the quickness and accuracy of a 4-inch beam. The balance does not kick when released. When preferred a rectangular reading lens will be furnished for the beam, instead of the circular glass as illustrated.

Price, without weights $250 00



550

550. **Thompson's Multiple Rider Attachment.**—This attachment and the riders used in connection with it take the place of all flat weights on Button Balances for weighing up to 72 milligrammes and Analytical Balances up to 720 milligrammes.

The attachment is very simple, being operated from the outside of the case. It consists of a movable wheel or carrier with seven arms, each arm carrying a rider of different weight. The end of each rider is formed to indicate its weight. (See illustration of riders for this attachment.)

On Button Balances the riders used are 1, 2, 3, 5, 10, 20 and 30 milligrammes, and on Analytical Balances 10, 20, 30, 50, 100, 200 and 300 milligrammes.

When this attachment is used the operator, instead of having to use tweezers to place small flat weights in the pan, places these wire weights (or riders) on the support provided for this purpose, which is equivalent to placing flat weights of the same value in the pan.

In weighing this attachment a 1-milligramme rider is used on the beam to obtain fractions of a milligramme on Button Balances, and on Analytical Balances a 10-milligramme rider is used on the beam.

Price, with set of riders $25 00



555

555. **Balances—Assay, Button.—Keller Balance O B.**—For scientific laboratories, control and umpire assays, it stands unequaled. Non-column type; all brass work is gold plated.

Beam 5 inches between outside edges, carrying two grammes in each pan; sensibility 1/500 milligramme.

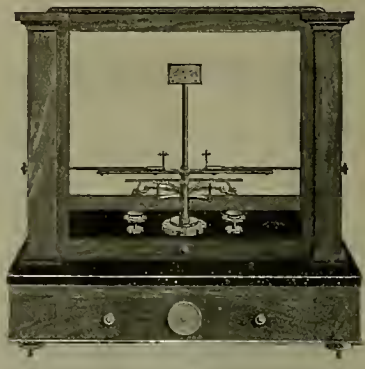
The pointer is upright and deviates five divisions on 1/10 milligramme; scale divided into twenty equal parts to the inch. It takes seventeen seconds for a complete oscillation.

There are no graduations on the beam to warp or weaken it, but there is a scale in connection with rider attachment. This scale is on a white base inlaid with black lines and in front of same is a black pointer attached to the rider operating device. This pointer indicates the rider on the beam. The rider carrier has a fixed place for a rider to hang. With this carrier the rider is placed on the beam and released from the carrier without moving the pointer in front of the scale, by simply pressing the center button of the outside knob. The accuracy of this arrangement cannot be disputed if our method of poising the beam is followed.

To poise the beam, hang the rider at 0, then poise the beam by one of the large star wheels in center of beam, or by using the opposite rider. This adjusts the rider to correspond absolutely with the pointer in front of the white scale. This scale is divided into eleven tenths. The first tenth is marked 0 and the eleventh is marked 10. Between 0 and 10 there are 100 divisions.

The beam support is of the fall-away type, making the release of beam smooth and gradual. Hangers and pans are made of German silver and are interchangeable. The pans have a durable dead black lining. The bearings are flat agate, which hang free on a knife edge, doing away with all liability of friction. They are supported when not in use. The hanger rests are only to stop the hanger from swinging; billiard cloth is used instead of pearl or agate where they come in contact with the hanger and they should be so adjusted that only the hair of the cloth touches the hanger.

Polished mahogany case, as nearly dust-proof as can be made, counterpoised door, heavy black glass sub-base covering entire top of base. Has levels and adjusting screws. This balance, as well as all other Keller Balances, will work satisfactorily on any temporary bench and is not affected by ordinary vibrations. Price $300 00



556

556. Keller 2 B Button Balance.—Beam 5 inches, capacity 2 grammes, sensibility 1/300 milligramme. Like all Keller Balances, this is of the non-column type, which allows of a much smaller and more compact case, thus reducing the air space that tends to produce air waves which affect the accuracy of the balance. The

point is upright and deviates 3 divisions on 1/10 milligramme on the scale, which is divided into twenty parts to the inch. The beam is of the truss type, combining lightness with strength and rigidity, and has no gradnations; these are on a scale in connection with the rider attachment. Rider is released from carrier by pressing the center button on the outside knob. Bearings of agate on agate knife edge supports. Beam support is of the fall-away type, hangers and pans of German silver and interchangeable, the pans having a dead black lining. Stirrups are V grooved and fitted accurately to knife edges. Between 0 to 10 mark there are 50 divisions, and by placing a $^1/_2$ milligramme in the center of any division a reading of 1/200 milligramme can be taken. In fine polished mahogany case, with black glass sub-base and counterpoise door.

Price, without weights $200 00



557

557. **Keller 1 B Button Balance.**—Beam 5 inches, capacity 2 grammes, sensibility 1/400 milligramme. This is similar to the preceding balance (2 B) in all points except that the pointer deviates 4 divisions for 1/10 milligramme on the scale, which is divided into 20 equal parts to the inch. Between 1 and 10 mark on the rider scale there are 100 divisions, and by placing a ½ milligramme rider in center of a division a reading of 1/400 milligramme can be taken. The scale is on a snow-white base inlaid with black lines, in front of which is a black pointer attached to the rider operation devices by which the position of rider on the beam is indicated.

Price, without weights $250 00



560

560. **Keller 3 B Button Balance.**—Non-column type; all brass work gold plated. Beam 5 inches between outside edges; sensibility 1/200 milligramme. The pointer is upright and deviates two divisions on 1/10 milligramme on scale divided into twenty equal parts to the inch. It takes eleven seconds for a complete oscillation. The peculiar construction of the beam gives it great strength and rigidity. The edges and bearings are agate and are so accurately adjusted that the sensibility will not vary whether loaded with one milligramme or two grammes in each pan.

The beam is divided into eleven tenths; the first tenth is marked 0 and the eleventh marked 10. Between 0 and 10 there are 50 divisions. The beam support is of the fall-away type, making the release of the beam smooth and gradual. Hangers and pans have a durable dead black lining. Polished mahogany case, black glass sub-base covering entire top of base, has levels and adjusting screws. Price $150 00



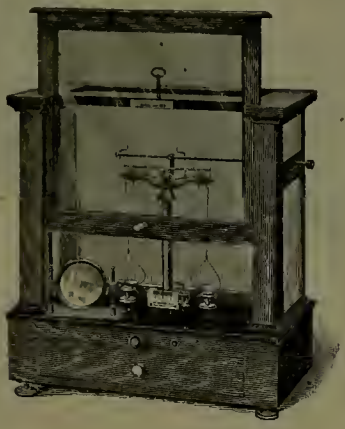
561

561. **Balances—Assay.—Voland & Sons No. 1004 A.** — Gold Button Short Beam Assay Balance, hard metal skeleton beam, graduated from center into 50 divisions on

each side. Rider can be used from the 0 point on either side of the beam. All bearings and knife edges are agate. French polished mahogany glass case with counterpoised front sliding frame and glass in top of case to admit light freely. Adjustable magnifier is provided for the ivory index plate. Black glass plate bottom. Dimensions of case same as Balance No. 1004. Sensitive to 1/200 milligramme.

Price $135 00

Indicator makes one full swing in 15 seconds.

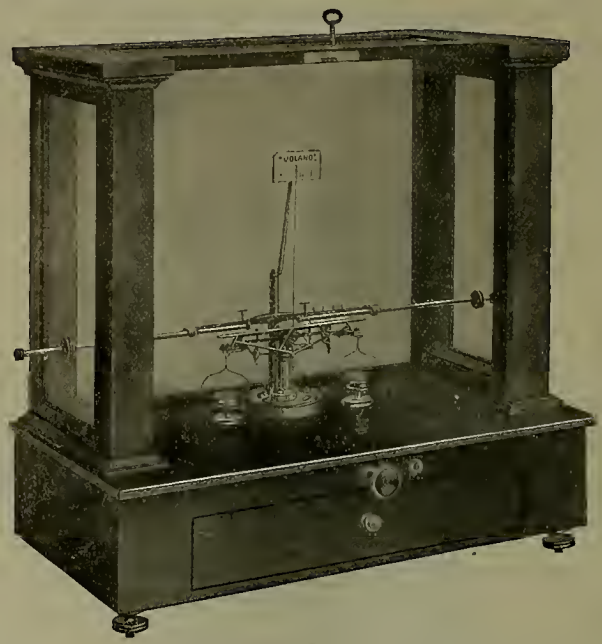


562

562. **Balances—Assay.—Voland & Sons No. 1003.**—Gold Button Short Beam Assay Balance, with skeleton aluminum beam and skeleton hangers. The very lightest and most sensitive balance ever made. The beam is only 4 inches long and divided from the center into 100 divisions on each side, and rider can be used from the 0 point on either side of the beam. The balance is mounted on a black glass plate. The glass case is French polished, with counterpoised front sliding frame and glass top. All bearings and knife edges are agate. The stirrups have agate points, which rest in agate bearings, so that on releasing the balance for weighing nothing can stick and the needle will not kick. The balance is provided with movable magnifier for ivory index plate and beam. Dimensions of case, 13 inches long, 12 inches high, and 6½ inches wide. Sensitive to 1/400 milligramme.

Price $175 00

Indicator makes one full swing in 15 seconds.



563

563. **Balances—Assay—Voland & Sons' 20th Century Leader.**—Five-inch beam. Sensitive to 1/500 milligramme. This balance is of the dwarf-column fall-away type, with triple movement, and will not stick. In releasing beam with eccentric key arrests for hangers are released first, then the stirrups, and finally the beam itself is let down on its bearings. The center knife of beam when released, rests on agate planes with flat surfaces, and therefore, coming in constant contact with the plane, will always retain its perfect edge. All metal parts not oxidized are heavily gold plated, making a very handsome instrument. No steel is used for screws on any of the exposed parts of the balance.

The beam of this balance is of truss style, 5 inches long (12.7 cm.) from end knife edge to end knife edge, and is made of a hard rolled alloy, lighter than aluminum, having as great a rigidity as steel. The beam is not affected by magnetism, temperature, or other tendencies that are supposed to affect the beam of a fine assay balance. All knife edges are agate and fitted in the beam in such a manner that they and the beam constitute a unit. As no screws are used to fasten the knives a permanent accuracy of adjustment is assured.

The beam is divided into one hundred parts from a point ten divisions out of the center to each end, and can be readily adjusted by hanging rider at 0 point on the right side and using rider on left side to balance the beam. The beam is provided with star-wheel adjusters set in the center and rests on its supports in such a manner that it is entirely free.

Magnifier furnished to read graduations on beam.

The arrangement for carrying the riders on this balance is of the simplest construction. To the rear of the rider carrier on both sides is a bar, oxidized black, containing notches marked in white, as follows: ½ and 1, for which corre-

sponding milligramme riders are furnished. With the use of rider carrier these riders can be lifted from the beam to their respective notches, doing away with the use of forceps, and riders will always retain their accuracy and shape.

The pointer or indicator points upward, and for 1/20 milligramme indicates five divisions on the index plate, (just twice as sensitive as balances of other makes advertised for sensibility of 1/500 milligramme) and makes one complete oscillation in twelve seconds.

The skeleton hangers and stirrups are made of German silver, are of the lightest possible construction and are interchangeable. The stirrups are fitted with agate planes. The balance is not affected by ordinary vibrations, and will work satisfactorily on any temporary table or bench.

The pans are oxidized black, and the smallest article can be readily seen in them.

The case of this balance is made of old mahogany, French polished, with glass in top; the front door is counterpoised. It is made as nearly air tight and dust proof as possible and has an entire heavy black glass plate base, on which the entire balance is mounted. The case measures 16½ inches long, 15½ inches high and 9 inches wide (42x39.5x23 cm). Net weight, 20 lbs.; packed, 50 lbs.

Price $300 00

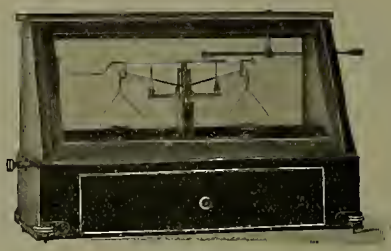
Denver Balance Company's Style "S" Portable Button Balance.—This balance has a 5-inch beam, agate edges and bearings, fall-away pan rests, level and leveling screws. The beam is unobstructed on top and is provided with a locking device securely holding it in place while in transport. The case is of walnut, French polished, and of the beveled front pattern; has sliding door, which can be held at any point.

These are good, substantial balances, capable of withstanding a reasonable amount of hard usage. All material is of the best. This is a good all-round portable outfit.

Dimensions of carrying case, 13x12x7½ inches. Weight, outfit complete, 14 lbs.



566

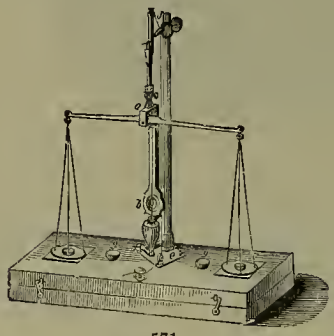


566

Prices:—

566. Style "S," sensitive to 1/50 milligramme, single rider attachment.....$85 00

568. Style "S," sensitive to 1/100 milligramme, double rider attachment.....$112 00
In combination with Style "O." (Catalogue No. 676.).....$15 00 extra



571



576

571. **Balances—Assay—Plattner's Blowpipe.**—It has a beam 7½ inches long; power 2 grammes to 1 milligramme. Packs in box 10½x6¼x1⅜ inches; has two pairs of movable pans and ivory spoon.
Price, with weights, complete$25 00

572. **Balances—Assay—Lingke's Blowpipe.**—Similar to preceding, with 7-inch beam with agate bearings; all metal parts are gilded. Sensitive to 1/20 milligramme up to 1 gramme. Folds up into a portable glass case.
Price, with weights, complete$65 00

576. **Balances—Assay—Pocket.**—This balance can be carried in the pocket, as the case measures 6x2¾x1¼ inches. The pans are raised and lowered by means of a drop lever. Weighs up to 10 grammes and shows ¼ of a milligramme. If a ½ assay weight is substituted for the 10 gramme weight, it can be used as a pulp balance in assays where ¼ milligramme is accurate enough.
Complete$18 00

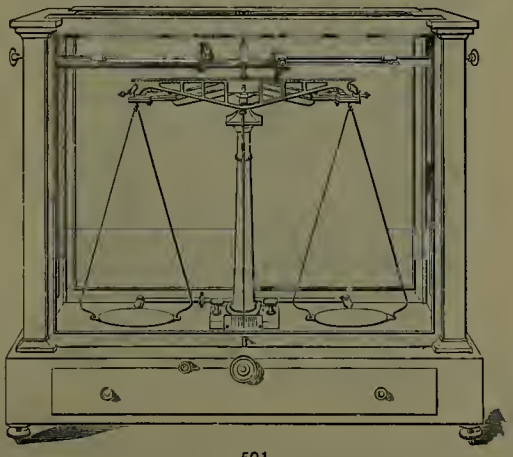
Balances—Analytical



586

586. **Becker's 8 A.**—Short beam balance for a charge of 200 grammes in each pan; sensible to 1/20 milligramme. On French polished mahogany and glass case; front counterpoised sliding frame with glass top to admit light on rider; all parts balanced and fastened on plate glass 5/16 inch thick, so that nothing can get out of order through the warping of the wood. All bearings are agate planes, with agate knife edges. The beam is graduated and in such a manner that the rider can be placed on the center of the beam and used from the 0 point to either end. Beam is divided into 60 parts; takes a 6 milligramme rider, which reads to 1/10 milligramme. This balance is provided with new improved arrangements for arrest of pans and riders, apparatus for specific gravity and for weighing tubes. Pans 2¾ diameter. Width of pan supports, 4 inches; can be made wider if desired.

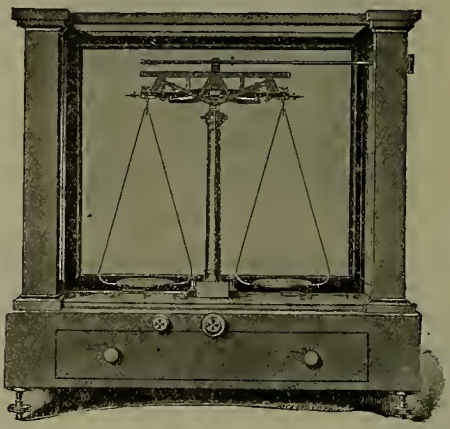
Price, without weights $125 00



591

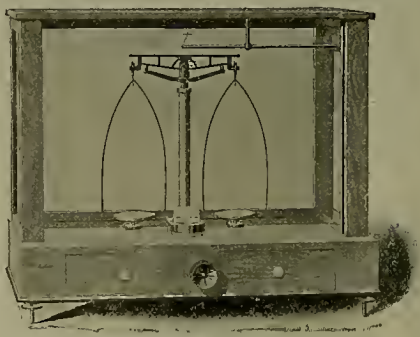
591. **Troemner's No. 6 New Aluminum Balance.**—12-inch beam, capacity 200 grammes, sensibility 1/20 milligramme. New improved rider arrangement on both arms

of the beam. All bearings are agate planes, all knives also. The beam, pans and hangers are of pure aluminum; all the other parts are plated with gold, making the scale proof against corrosion. Pans are 3¼ inches in diameter, and the supports are made so as to prevent elongation when loaded. In fine polished case of old mahogany and glass, with glass top to admit light.
Price, without weights $150 00



592

592. **Troemner's No. 10 Short Arm Balance.**—Beam 7 inches, capacity 200 grammes, sensibility 1/20 milligramme. Aluminum beam with both arms graduated; agate planes and knife edges; pans of aluminum, with self-locking pan arrest. In fine polished mahogany and glass case, with glass top and heavy plate-glass bottom.
Price, without weights $125 00



596

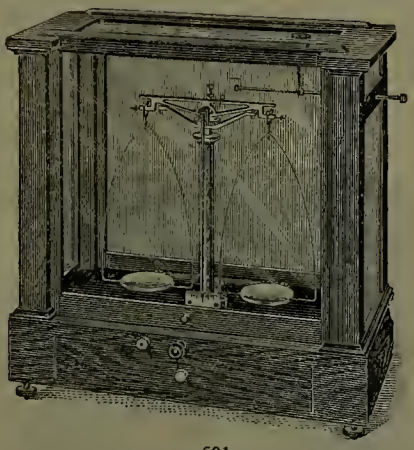
596. **Ainsworth's Type L.**—Beam 6 inches, capacity 200 grammes, sensibility 1/10 milligramme. In this balance the yokes and pan arrests are operated by a single thumb-piece, as in the button (assay) balances; the balance can be operated more quickly than where the pan rests are operated by a separate button. Agate bearings and knife edges; single rider apparatus. In French polished mahogany case with counterpoised sliding door.
Price, without weights $75 00



597

597. **Ainsworth's Type Q.**—Beam 7 inches, capacity 200 grammes, sensibility 1/20 milligramme. Beam of hard-rolled nickel aluminum, cut out of a solid piece and of uniform density throughout, thus remaining in adjustment through a wide range of temperature changes. Edges of solid agate set in the beam. Rider apparatus of improved design, permitting the rapid handling of the rider without danger of throwing it off the beam or rider arm. Hangers of hard-drawn German silver wire and skeleton construction. In finely polished case with counterpoised sliding door in front and removable sliding door back. A pair of glass pans furnished, which check with the metal plates so that either or one of each may be used.

Price, without weights $125 00



601

601. **Balances—Analytical—Voland & Sons No. 1006 B.**—Short Aluminum Beam Analytical Balance for a charge up to 100 grammes in each pan; in French polished mahogany glass case; front sliding frame counterpoised; beam 6 inches long; divided in 1/10 parts of milligramme, with new improved arrangements

for arrest of pans; provided with wood stand for taking specific gravity; pans 2½ inches diameter, bows 4½ inches. Agate bearings with agate knife edges; sensitive to 1/10 milligramme.

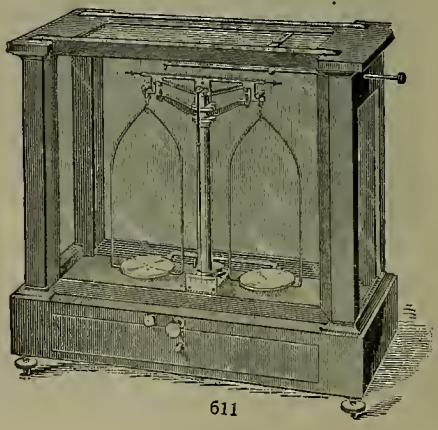
Price $60 00



602

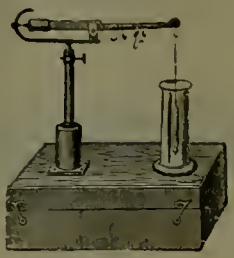
602. **Balances—Analytical—Voland & Sons No. 1008 A.**—Short Beam Analytical Balance for a charge up to 200 grammes in each pan. Is mounted on heavy black glass plate in fine polished mahogany glass case, with counterpoised front sliding frame. The case has glass top to admit light freely. The beam is divided into 1/10 milligramme from center to each side of beam, and rider can be used from 0 point. All bearings and knife edges are agate. The balance is provided with new arrangement for the arrest of pans and beam, apparatus for specific gracity, rider and weighing tubes. Pans 2½ inches diameter, bows 4½ inches. Dimensions of case 16½ inches long, 17 inches high and 9 inches deep. Sensitive to 1/20 milligramme.

Price $125 00

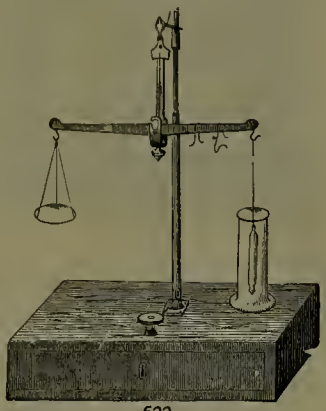


611

611. **Balances—Analytical, with Non-Corrosive Weights.**—Capacity 100 grammes, sensibility 1/10 milligramme. This balance combines features that are not to be had in other balances for the price. Short beam of aluminum, graduated for rider, with adjusting screws on both ends. Agate planes and knife edges, arrest for pans with automatic stop; bows and pans extra wide. Mahogany case finely polished, with glass top. A complete set of weights from 50 grammes to 1 milligramme. The smallest weights are of platinum, the largest weights (1 gramme to 50 grammes) are platinum plated, thus making them non-corrosive.
Price, including weights $80 00



621



622



626

621. **Balances—Specific Gravity—Prof. Westphal's.**—Very exact and rapid; for liquids only. Glass body with thermometer. In polished wood case with rider weights.
Complete, each $15 00

622. **Balances—Specific Gravity—Mohr's.**—For both liquids and solids, having four sets of rider weights which indicate the specific gravity in 1, 1/10, 1/100 and 1/1000. Provided with two pans on which ordinary weighing can be done. Mounted on mahogany box 13x7x3½ inches, with lock drawer, into which the whole scale can be put.
Complete, each $25 00

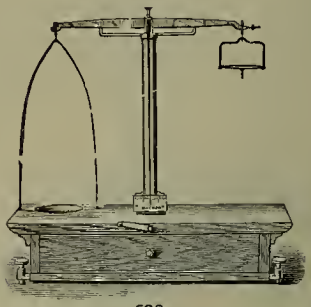
623. **Balances—Specific Gravity—Sartorius.**—For liquids only. A very effective balance of improved construction.
Complete, in case $30 00

626. **Balances—Specific Gravity.**—With 10-inch beam; mounted on stand 11 inches high, which can be raised to 18 inches by means of a rod sliding inside of pillar. Pans, 5 inches in diameter, have hook for suspension; capacity 500 grammes.
Price $12 00

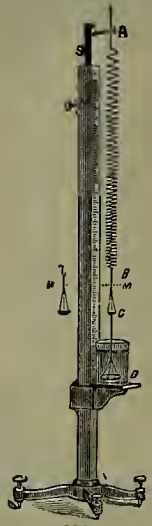
627. **Balances—Specific Gravity.**—With 6¾-inch beam, adjustable column, upright indicator; 5-inch pans, provided with hooks; capacity 100 grammes.
Price $6 00

628. **Balances—Specific Gravity—Hydrostatic.**—Especially designed for school use. Beam, 10 inches; 5½-inch movable pans. Capacity 1 kilo to 1 centigramme. Pans have a counterpoised hook for specific gravity work. On box with drawer, with a set of block weights, 500 grammes to 1 centigramme.
Price $25 00

630. **Balances—Specific Gravity—Chaslyn.**—This balance is a great improvement of the ordinary beam scale. It is furnished with rings that serve for weights, and is so constructed that the weights cannot be removed, obviating all danger of loss. Four sizes of rings, each weighing ten times as much as the next lower size, by their position on the beam give a direct reading, ranging from 111.1 grammes down to 1 centigramme, which is the sensitiveness of the scale with a full load. A hook under the pan support, together with a swing table for supporting a breaker, allows it to be used for determination of specific gravity. Packed in wooden case.
Price $15 00



628



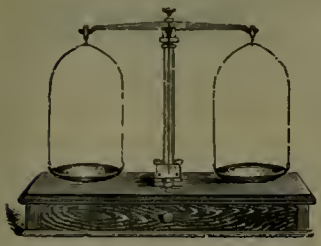
631

631. **Balances—Spiral—Jolly.**—Constructed entirely of metals, on a heavy tripod base with leveling screws. Brass upright, with mirror scale, sliding platform and adjustment; stage, scale and hook are clamped to upright, all three being adjusted separately. Two springs for high and low tension and sinker for taking specific gravity of liquids. Pans of Aluminum.
Price $12 50

632. **Balances—Spiral—Jolly.**—A cheaper instrument, having the principal features of the above, but without separate adjustments.
Price $6 00

Pulp and Dispensing Balances

Balances—Pulp—Becker's.—On French polished box with drawer into which the whole balance can be fitted. With eccentric motion for lifting, bows and movable pans.



646



651

	Becker	Capacity	Sensitiveness	Each
646.	No. 14	2 ounces	1/50 grain	$11 00
647.	No. 17	5 "	1/30 "	15 00
648.	No. 19	10 "	1/20 "	22 00

Balances—Pulp—Becker's.—Similar to preceding, but in mahogany glass case with counterpoised sliding door.

	Becker	Capacity	Sensitiveness	Each
651.	No. 16	2 ounces	1/50 grain	$22 00
652.	No. 18	5 "	1/30 "	26 00
653.	No. 20	10 "	1/20 "	35 00

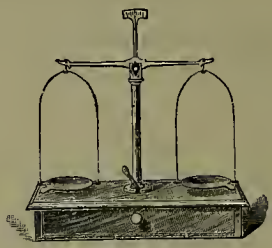
661. **Balances—Pulp—Troemner's P. 63.**—In polished mahogany and glass case with counterpoised sliding door, with adjusting screw on beam to balance the scale. Beam, 8 inches long; pans of solid nickel, 2¾ inches diameter. Capacity, 2 ounces, sensitive to 1/50 grain.
Price $22 00

663. **Balances—Pulp—Troemner's Fig. 10.**—With indicator pointing downwards, slide attachment on needle for adjustment; nickel-plated pans, 2¾ inches. On polished box with drawer; entire scale lacquered. Total height, 11½ inches. With a set of weights of 2 drachms to ½ grain
Price $8 00

Balances—Pulp—Troemner's Army Fig. 9.—These are cheap but reliable scales for pulp or drug weighing, and are well adapted to physicians' offices. They are on polished walnut box with drawer into which the scale fits. Provided with set of weights, 2 drachms to ½ grain.



676



666

666.	No. 2	5¾ inches	$3 50
667.	No. 1	6 "	5 00
668.	No. 0	8 "	6 00

671. **Balances—Pulp—Ainsworth's N.**—6-inch beam; capacity, 8 ounces (200 grammes); sensitive to 1/65 grain (1 milligramme). With 2½-inch pans; mounted on polished mahogany case, into the drawer of which all parts can be packed for carrying.

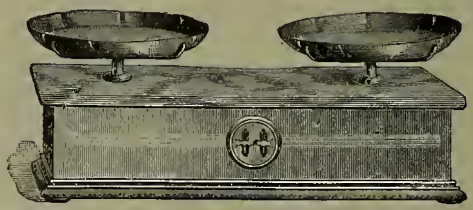
Price $15 00

673. **Balances—Pulp—Ainsworth's M.**—Beam, 6 inches; capacity, 8 ounces or 200 grammes; sensitive to 1/130 grain or ½ milligramme; with 2½ or 3-inch pans. Agate bearings; pan rests; in mahogany and glass case, with counterpoised door and level and leveling screws.

Price $30 00

676. **Balances—Pulp—Denver Style O.**—Sensitiveness 1 milligramme, 6-inch beam. Fitted with level and leveling screws; 2½-inch pans, mounted on a French polished mahogany base, into the drawer of which the beam, column, hangers and pans pack for carrying.

Price $15 00



681

681. **Balances—Dispensing—Troemner's Empire.**—A box scale, with 8-inch nickel pans, in a cherry box with marble top, glass dial, etc. Pans, 8 inches diameter; capacity, 20 lbs.

Price $10.00



682

682. **Balances—Dispensing—Troemner's Climax.**—A box scale of cherry-mahogany, with marble top; hinged glass cover with ebony mountings. A reliable and substantial scale. Pans, 2⅜ inches diameter.

Each $12 50

684. **Balances—Dispensing—Troemner's Fig. 89.**—A box scale of ebony, gold lined with marble top. Gilt dial and heavy nickel-plated pans 7 inches diameter. Capacity, 10 lbs.

Each $12 00



686

686. **Balances—Dispensing—Troemner's Fig. 6.**—A handsomely finished scale for rough work. Has 3¾-inch nickel-plated movable pans. A side beam in front of scale, with a sliding weight, is divided into 120 divisions, each of which represents one grain; an extra row of metric divisions is placed on bottom edge of beam, each representing one centigramme. Platform or shelf is attached to base of scale, in which are fitted a set of solid weights, from 2 ounces down; capacity, 4 ounces to 1 grain.

Each $8 00



687

687. **Balances—Dispensing—Troemner's Fig. 7.**—A new laboratory scale for accurate weighing. With 6-inch movable pans, carrying one pound in each pan. Sensitive to ½ grain, with a full set of weights, from 8 ounce troy to ½ grain, which are neatly fitted into a shelf attached to the base of scale. Capacity, 12 ounces.

Each $9 00



691

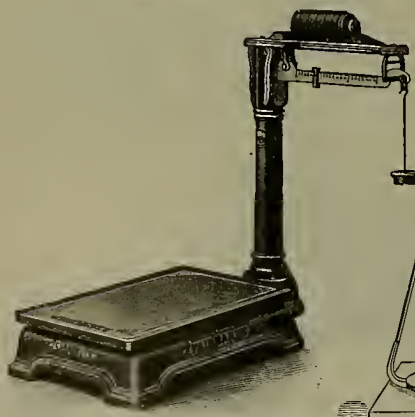
691. **Prescription Scales—Surgeon's Pocket.**—Elegant upright and pocket scale. The same has drop lever, by which it is raised or lowered; including weights (fitted separately in the box, as shown), either gramme, grain or drams and scruples; sensitive to 1/100 grain or 1 milligramme; with tweezers also fitted in box; measures when closed 6 x 2½ x 1¼ inches.
Price $12 00

Bullion and Gold Scales

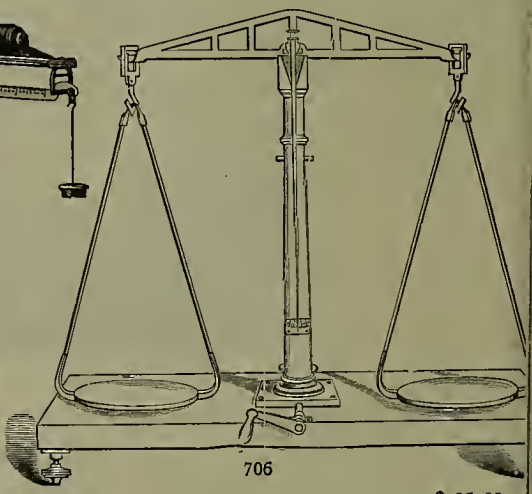
Bullion Balance—Becker.—Brass open beam, brass bows and plates. Bed-plate and column of cast-iron, well finished. With arrest for pans, set screws and level.

701. No. 29. Capacity, 500 ounces to 1 grain. Each $165 00
702. No. 31. " 2000 " " 2 " " 220 00
703. No. 33. " 5000 " " 2 " " 600 00

Bullion Balance—Troemner's Fig. 170.—Brass beam, pans and bows; improved with glass level and leveling feet; adjusting screws on beam. A full set of weights included, the large ones of iron, those from 50 ounces down of brass, in a walnut block



716



706

706. Capacity, 500 ounces. Price $ 95 00
707. " 1000 " " 120 00
708. " 1500 " " 150 00

711. **Bullion Balance—Troemner's Fig. 172.**—Iron beam and bows; brass pans, eccentric lift, adjusting screws on beam. With a full set of weights. Capacity, 1500 ounces to 2 grains.
Price $100 00

Bullion Balances—Fairbank's Platform.—With a brass beam, brass weights and counterpoise. Finely adjusted and ornamented.

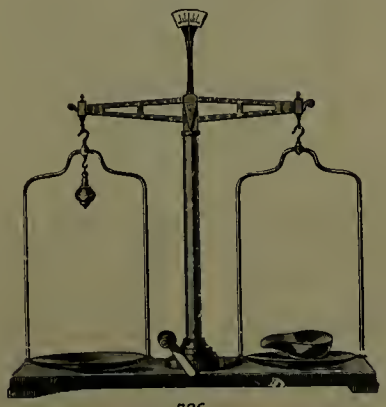
716. Platform 10 x 14 in.; capacity, 2400 oz. to ¼ oz. troy. Each.....$30 00
717. " 13½ x 19 " " 2800 " ¼ " " 50 00



721

Gold Scales—For Jewelers—Troemner's.—In French polished mahogany and glass case, with counterpoised door; leveling feet and glass level; adjusting screws on beam. Movable nickel pans; of the highest sensibility.

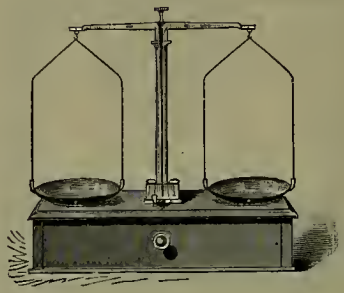
	Beam, inches	Diameter of Pans	Capacity	Each
721.	8¼	6	10 ounces	$30 00
722.	10	4	20 "	37 00
723.	14	3	50 "	45 00



726

Gold Scales—For Jewelers, etc.—Troemner's.—Mounted on walnut platform, with improved lever; extra pan for loose matter. A large and roomy form of balance. Prices include weights.

	Length of Beam, Inches	Pans, Inches	Weights	Each
726.	14	9	32 ounces	$35 00
727.	16	9	64 "	45 00
728.	18	10	100 "	55 00
729.	24	12	200 "	90 00



731

Gold Scales—Troemner's.—On French polished mahogany box with drawer, into which the balance is fitted, indicator pointing downward. A set of troy cup weights included. Very accurately adjusted.

	Capacity, Ounces	Pans, Inches	Each
731.	4	3	$ 8 00
732.	8	3½	10 00
733.	16	4	12 00
734.	32	5	15 00
735.	64	6	24 00

Gold Scales—German.—On polished box, with weights, the pans supported by chains, indicator pointing upwards. Weights included.

	Diameter of Pans, Inches	Capacity, Ounces	Each
736.	4	8	$ 8 00
737.	4¼	16	10 00
738.	5⅜	32	15 00
739.	6	64	20 00
740.	6½	96	25 00
741.	7	128	30 00

Gold Scales—Troemner's Hand.—In lacquered tin box.

746. Capacity, 1 ounce. Each.....$2 50
747. " 2 " " 3 00
748. " 4 " " 3 50

Gold Scales—D K 27 German.—In leather-covered boxes, with a set of brass troy weights.

751. Capacity, 4 ounces. Each.....$2 00
752. " 8 " " 2 50



756

Gold Scales—Hand, D. K 24 German.—In tin boxes, with a set of brass troy weights.

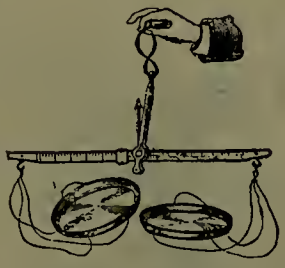
756. Capacity, 4 ounces. Each.....$1 50
757. " 8 " " 2 00



759

Gold Scales—Hand, D. K. 37 German.—In velvet-lined pasteboard case, with brass apothecary weights.

759. 4½-inch brass beam; 2- inch pans. Each.....$0 75
760. 5½ " " " 3½ " " " 1 00



761

Gold Scales.—In pasteboard box, polished beam, horn pans, suspended by silk cords; no weights included.

761. Beam, 5 inches; pans, 2 inches. Each.....$1 25
762. " 7½ " " 3½ " Each..... 2 50

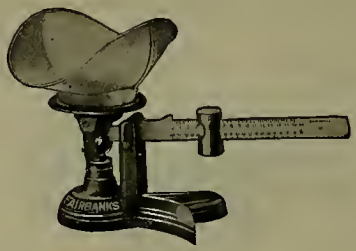
Diamond Scales.—In boxes with weights, similar in appearance to Balance No. 691.

777. 64 karats to 1/64, extra quality. Each.....$12 00
778. 32 " " 1/64, medium quality. Each 6 50

Moisture and Trip Scales

Moisture scales are used in smelting and other plants to determine the percentage of moisture in ores, etc. They are provided with a beam on which are two divisions, one giving the loss in ounces after drying and the other marking the corresponding percentage of loss. The loss is indicated by a sliding weight.

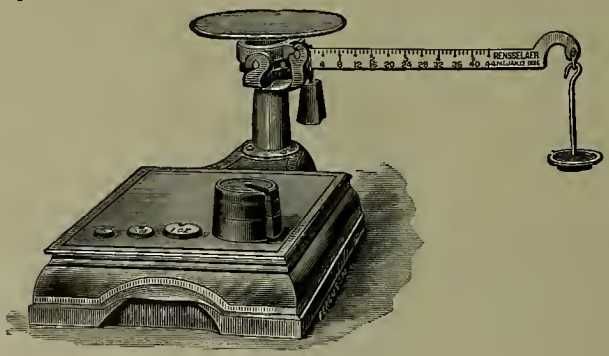
786. **Trip Moisture Scale.**—Capacity, 2 lbs to ½ oz., with weights; with scoop and tare weight.
Each $10 00



788

788. **Moisture Beam Scale.**—With a capacity of 50 ounces to ½ ounce. The beam has two rows of graduations, the upper giving the weight in ounces or pounds and fractions thereof, the lower giving the percentage of loss. This latter row is figured on all scales, from 100 to 0 per cent by 1 per cent; thus the reading gives direct percentage of loss. The ore is first weighed as received, then roasted or dried and reweighed to find the loss of moisture or sulphur.
Each $10 00

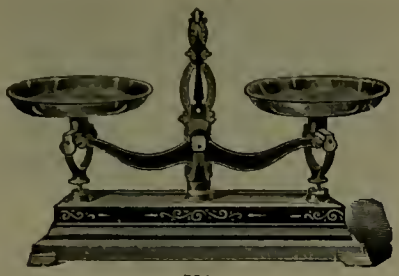
Counter Beam Scale.—Finished in black and gilt; with platform and tin scoop; capacity 240 pounds by 4 ounces on the platform and 30 pounds by ½ ounce in the scoop.



789

789. With single beam. Each $ 9 00
790. " double " " 10 00

Trip Scale.—For manufacturing chemists. With large, shallow or saucer-shaped movable pan of hammered copper; bearings of steel.



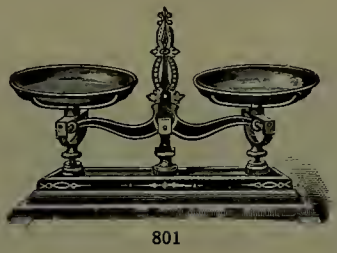
791

791. Capacity, 25 lbs.; pans, 16 inches. Each.....$10 00
792. " 40 " " 19 " " 14 00



794

794. **Trip Scale—Harvard Balance.**—A scale especially suited for elementary experiments in physics and other laboratory work. It has two 6-inch round porcelain plates, upright indicator, side beam graduated to 10 grammes by 1/10 and a capacity of 1 kilo.
Price$7 50



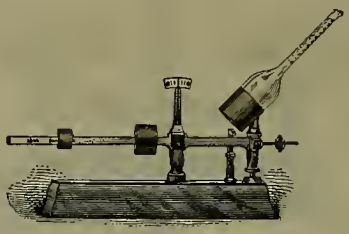
801

Trip Scale—Robervahl.—For druggists' use.

801. Capacity ½ kilo, or 1 lb. (without weights). Each.....$3 00
802. " 1 " 2 " " " " 3 50
803. " 2 " 4½ " " " " 4 00
804. " 3 " 6½ " " " " 4 50
805. " 5 " 11 " " " " 5 00
806. " 10 " 22 " " " " 6 00
807. " 15 " 33 " " " " 8 00

821. **Trip Scale—All Iron.**—Even balance scale, with tin scoop and set of weights of iron, from ½ ounce to 2 pounds; total weight 4 pounds.
Each $2 25

823. **Trip Scale—All Iron.**—Even balance scale, with tare beam, weighing up to 8 pounds, by ¼ ounce. Steel bearings and tin scoop. Weights included.
Each $4 50



831

831. **Cream Test Scale.**—For testing cream by the "Babcock" method. This is the best, quickest and most sensitive scale made for the purpose, same showing 1 centigramme when loaded. The large poise on beam and mill-headed screw on end of beam are to balance the bottle; the other weight on beam is to be set at 9 and 18 grammes.
Price $10 00

We are ready at all times to furnish any particular style of balance not illustrated or mentioned in this catalogue. We aim to supply our customers with any style of balance they may desire, although we are not able to illustrate all the patterns of the various makers.

Weights—Assay

841. **Oertling's.**—In ivory box with screw lid, marked 100-1 gramme. Of sheet platinum, from 1 gramme to 1 milligramme, with 6 riders of 10 milligrammes.
Per set $13 00

842. **Oertling's.**—Like preceding, but marked 100-½ gramme, weighing ½ gramme to ½ milligramme; of sheet platinum, with 6 riders of 5 milligrammes.
Per set $13 00

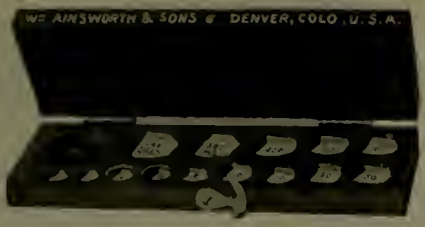
843. **Oertling's.**—Same style as preceding, but marked 1000-10 grains, weighing from 10 grains to 1/100 grain, and with 6 riders weighing 1/10 grain.
Per set $13 00

851. **Becker's No. 1.**—Of platinum; weighing from 1 gramme to 1/10 of a milligramme. In ebony box.
Per set $10 60

852. **Becker's No. 9.**—Of platinum; weighing 10 grains to 1/1000 grain. In ebony box.
Per set $10 60

861. **Troemner's.**—Of platinum; weighing 1 gramme to 1/10 milligramme. In ebony box.
Per set $10 50

863. **Troemner's.**—Of aluminum; weighing 1 gramme to 1 milligramme. In mahogany box.
Per set $5 00



871

871. **Ainsworth's No. 100.**—Of platinum; weighing 1 gramme to 1 milligramme, with two riders; error limit, ± .005 milligramme. In ebony box.
Per set $25 00

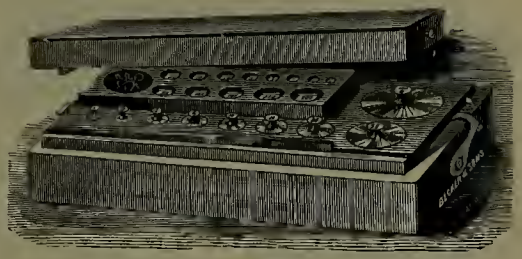
872. **Ainsworth's No. 150.**—Of platinum; weighing 1 gramme to 1 milligramme, with two riders; error limit, ± .01 milligramme. In ebony box.
Per set $15 00

873. **Ainsworth's No. 200.**—Of platinum; weighing 1 gramme to 1 milligramme, with two riders. In ebony box.
Per set $10 00

874. **Ainsworth's No. 250.**—Of platinum; weighing 500 milligrammes to ½ milligramme, marked 1000 to 1 for bullion. In ivory box.
Per set $10 00

Weights—Analytical

In polished mahogany boxes, with pincettes. Large weights of lacquered brass; small weights of aluminum.



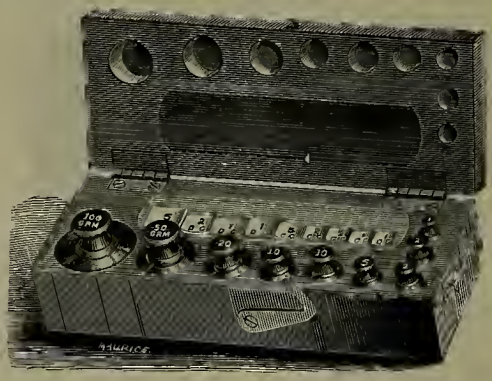
888

Becker's.

886. No. 3—Two 20-gramme pieces to 1 milligramme, with 3 riders.
Per set $14 00

887. No. 4—One 50-gramme piece to 1 milligramme, with 3 riders.
Per set 16 00

888. No. 5—One 100-gramme piece to 1 milligramme, with 3 riders.
Per set 18 00



892

Becker's.

890. No. 21—One 20-gramme piece to 1 centigramme, class 2. Per set..... $ 3 50
891. No. 11— " 50 " " " 1 milligramme, " 2. " 9 00
892. No. 13— " 100 " " " 1 " " 2. " 10 00



901

Troemner's.

896. One 10-gramme piece to 1 milligramme, without rider. Per set.....$11 00
897. Two 20 " " " 1 " with 3 riders. " " 13 00
898. One 50 " " " 1 " with 3 riders. " " 14 00
899. One 20 " " " 1 centigramme, class 2. " " 3 50
900. One 50 " " " 1 " class 2. " " 5 00
901. One 100 " " " 1 " class 2. " " 6 00

Ainsworth's.

906. No. 300— 10-gramme piece to 1 milligramme, with 2 riders. Per set.....$11 00
907. No. 350— 20 " " " 1 " " 2 " " " 12 00
908. No. 400— 50 " " " 1 " " 2 " " " 14 00
909. No. 450—100 " " " 1 " " 2 " " " 16 00



913

Imported.—First quality, for high-grade work. Platinum plated, accurately adjusted and agreeing among themselves. In velvet-lined mahogany case; each weight fitted separately; platinum fractions, aluminum riders, ivory tip forceps.

911. 20-gramme piece to 1 milligramme, with 2 riders. Per set.....$10 00
912. 50 " " " 1 " " 2 " " " 12 00
913. 100 " " " 1 " " 2 " " " 14 00



920.

Imported.—Second quality, for ordinary work; nickel plated, highly finished; accurately adjusted. Velvet-lined mahogany box; with pincettes.

916. 20-gramme piece to 1 milligramme, with 2 riders. Per set.....$ 6 00
917. 50 " " " 1 " " 2 " " " 6 50
918. 100 " " " 1 " " 2 " " " 7 50
919. 200 " " " 1 " " 2 " " " 10 00
920. 500 " " " 1 " " 2 " " " 12 50

Weights—Single.—Separate from the sets. Of sheet platinum; very accurate.

936. Milligrammes	1000	500	200	100	50	20	10	5	2	1
Each	$1.25	1.00	.75	.70	.50	.35	.35	.35	.30	.30
938. Grains			10	5	2	1	5/10	2/10	1/10	
Each			$1.10	1.00	.75	.75	.50	.35	.35	

941. **Weights, Single.**—Of platinum wire.

Milligrammes	100	50	20	10	5	2	1
Each	$0.90	.75	.60	.50	.40	.35	.35

943. **Weights, Single.**—Of sheet aluminum.

Milligrammes	20	10	5	2	1
Each	$0.50	.45	.40	.35	.30

945.

Grains	5/10	2/10	1/10	5/100	2/100	1/100
Each	$0.50	.40	.35	.40	.35	.35

Weights—Single.—Second quality, of sheet German silver.

951.

Milligrammes	500	200	100	50
Each	$0.50	.40	.40	.35

953.

Grains	10	5	2	1
Each	$0.50	.40	.40	.30



961

961. **Riders—Metric.**—For assay and analytical balances. With eye at right angles with legs.

Milligrammes	½	6/10	1	12/10	2	5	6	10	12
Each	$0.50	.50	.50	.50	.40	.40	.40	.35	.35

962. **Riders—Metric.**—With eye parallel to legs.
Same prices as preceding.

965. **Riders—Grains.**—For assay and analytical balances.

Grains	12/100	6/100	5/100	2/100	1/100	12/1000
Each	$0.30	.30	.35	.35	.50	.50

Assay Ton Weights

In polished boxes.

The assay ton consists of as many milligrammes (29,166) as there are troy ounces in a ton avoirdupois of 2000 pounds; hence, if one assay ton of ore gives a button of 1 milligramme weight, the ore carries one ounce troy to the ton.

976. **Becker's.**—1 A. T. down to 1/20 (.05). Per set.....$3 75
977. 4 A. T. " " 1/20 (.05). " " 6 00
979. **Troemner's.**—1 A. T. down to 1/20 (.05). Per set..... 4 00
980. 4 A. T. " " 1/20 (.05). " " 6 00
982. **Ainsworth's No. 650.**—1. A. T. down to 1/20 (.05). Per set..... 4 00
983. **No. 700.**—4 A. T. " " 1/20 (.05). " " 6 00

986. **Weights—Assay Ton.**—Single.

A. T.	4	2	1	1/2	1/5	1/10	1/20
Each	$1.25	1.00	1.00	.90	.75	.60	.50

991. **Weights—Sugar.**—Normal weights for sugar analysis.

Grammes	26.048	13.024
Each	$1.00	1.00

Bullion and Other Weights



1001



1021



1011

Weights—Gramme—Brass.—In blocks of polished wood.

1001.	1-5 kilo	piece to	1	gramme.	Total weight,	10	kilos.	Per set	$18	00			
1002.	2-2 "	" "	1	"	" "	6	"	" "	9	00			
1003.	1-2 "	" "	1	"	" "	4	"	" "	6	00			
1004.	1-1 "	" "	1	"	" "	2	"	" "	4	00			
1005.	1-500 gramme	" "	1	"	" "	1000	grammes.	Per set	2	50			
1006.	2-200 "	" "	1	"	" "	500	"	" "	1	50			
1007.	1-100 "	" "	1	"	" "	200	"	" "	1	00			
1008.	1-50 "	" "	1	"	" "	100	"	" "		75			

Weights—Gramme—Brass.—In cardboard boxes.

1011.	100-gramme	piece to	1	centigramme.	Per set	$1	60	
1012.	50 "	" "	1	"	"	1	10	
1013.	20 "	" "	1	"	"		65	
1014.	10 "	" "	1	"	"		50	
1015.	1 "	" "	1	"	"		25	

Weights—Gramme—Brass.—Of good quality, in polished wood blocks.

1016.	200 gramme	piece to	10	milligramme.	Per set	$3	00	
1017.	100 "	" "	10	"	"	2	00	
1018.	50 "	" "	10	"	"	1	50	
1019.	20 "	" "	10	"	"	1	20	

Weights—Metric—Coin Shape.—In mahogany boxes, with pincettes, for dispensing purposes.

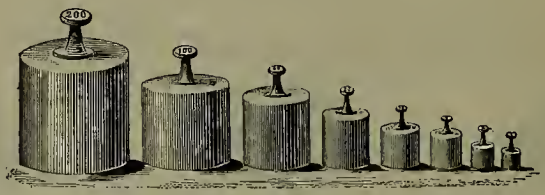
1021.	20-gramme	piece to	1	centigramme.	Per set	$1	75	
1022.	10 "	" "	1	"	"		75	

Weights—Metric—Nested.—Of japanned iron, hexagonal shape.



1026

1026.	10 kilos	to	10	grammes.	Per set	$6	00	
1027.	5 "	"	10	"	"	3	50	
1028.	2 "	"	10	"	"	2	00	
1029.	1 "	"	10	"	"	1	25	



1031

1031. **Weights—Metric.**—Single, separate from sets, of solid brass, well made.

Grammes . ..	1	2	5	10	20	50	100	200	500	1000
Each	.10	.10	.10	.15	.20	.35	.45	.60	.100	1.25



1046



1061



1066

Weights—Troy.—In wood blocks.

1046. 1-500 oz. piece to ½ grain. Total weight, 1000 oz. Per set.....$51 00
1047. 1-200 " " " ½ " " " 400 " " 27 00
1048. 1-100 " " " ½ " " " 200 " " 18 00
1049. 1-50 " " " ½ " " " 100 " " 12 50
1050. 1-20 " " " ½ " " " 40 " " 7 00
1051. 1-10 " " " ½ " " " 20 " " 4 00
1052. 1-5 " " " ½ " " " 10 " " 2 50
1053. 2-2 " " " ½ " " " 5 " " 1 75
1054. 1-1 " " " ½ " " " 2 " " 1 00

Weights—Troy.—In cardboard cases.

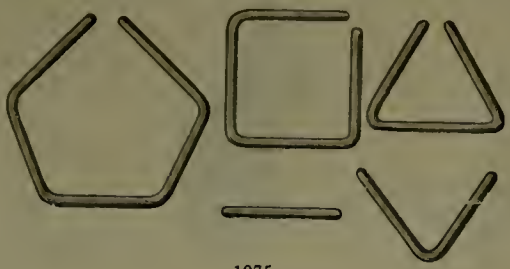
1061. 10-ounce piece to ½ grain. Per set.....$4 00
1062. 2 " " " ½ " " 1 75
1063. 1 " " " ½ " " 1 00

Weights—Troy.—Cup-shape.

1066. 64 ounces to ¼ ounce. Per set.....$9 00
1067. 32 " " ¼ " " 5 50
1068. 16 " " ¼ " " 4 00
1069. 8 " " ¼ " " 3 00
1070. 4 " " ¼ " " 1 50

1073. **Weights—Troy.**—Decimal, for bullion scales.—Shaped like numerals. Set of 4/10, 3/10, 2/10, 1/10, 5/100, 4/100, 3/100, 2/100, 1/100 of an ounce.
Per set$2 50

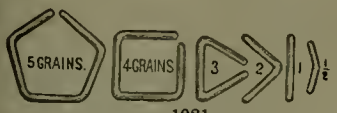
1074. **Weights—Troy.**—Decimal, of aluminum wire. In cardboard box. Set of 1/20, 1/50, 1/100, 5/1000, 2/1000, 1/1000 of an ounce. Per set.....$1 60



1075

1075. **Weights—Troy.**—Decimal, of nickel silver.—In cardboard box. One weight each, 50, 40, 30, 20 and 10 grains. Per set.....$0 60

1077. **Weights—Troy.**—For weighing gold, jewelry, etc. In cardboard box. 10 pennyweights to ½ grain. Per set$0 40



1081



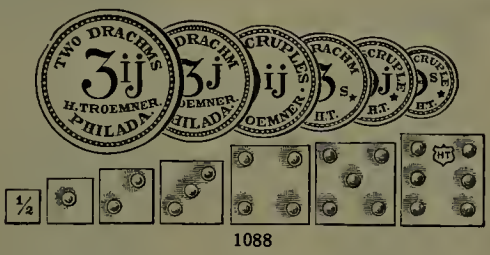
1082

Weights—Troy.—Of aluminum.

1081. Wire 5 grains to ½ grain. Per set.....$0 25

1082. Square sheet, 10 " " ½ " " 40

1083. Square sheet, 6 " " ½ " " 15



1088

Weights—Troy—Apothecary.

1086. Coin shape, in mahogany box, with pincettes. 300-grain piece to 1/10 grain. Per set$1 75

1088. Coin shape, in cardboard box. Drachms, scruples and grains. Per set..... 25

Weights—Diamond.—In velvet-lined cases.

1106. 2 karats to 1/64. Per set.....$1 50

1107. 1 " " 1/64. " 1 25

Weights—Avoirdupois.—Brass, in blocks.

1121. 4 pounds to ⅛ ounce. Per set.....$7 00

1122. 2 " " ⅛ " " 4 75

1123. 1 " " ⅛ " " 3 25



1131

Weights—Avoirdupois.—Brass cased.

1131. 4 pounds to ½ ounce. Per set.....$2 75
1132. 2 " " ½ " " 1 75
1133. 1 " " ½ " " 1 25

Weights—Avoirdupois.—Iron, in sets.

1141. 10 pounds to ½ ounce. Per set.....$3 00
1142. 4 " " ½ " " 1 25
1143. 2 " " ½ " " 75
1144. 1 " " ½ " " 50

Balance Cases

1161. Of walnut, with double door and drawer; bottom of case of polished mahogany. Inside measure, 14 x 14 x 6¾ inches. Each.....$8 00

1166. Of French polished mahogany, with counterpoised door sliding upward. Inside measure, 16½ inches wide, 13 high, 5¾ deep, thus accommodating scales of large size. Each$10 50

Balance Pans



1171



1181

1171. Glass, 2½, 2¾ or 3 inches diameter. Per pair.....$0 40
1173. Brass, 2½, 2¾ or 3 " " " 50
1175. Nickel, 2½, 2¾ or 3 " " " 75
1177. Nickel plated, 7 inches diameter. Per pair..... 1 00
1178. " " 8 " " " 1 50
1179. " " 9 " " " 2 00
1181. Brass, 5¾ " " " 75
1182. " 8 " " " 1 50
1183. " 9 " " " 2 00

Balance Rests

1191. Of glass, circular disks, for placing under the leveling feet of the finer balances to insure stability; a conical depression receives the point of the screw. Per dozen$0 75

Your attention is called to The Calkins Specialties which are mentioned in this catalogue. They are more fully described in a special catalogue, which we will be pleased to mail upon application.



1201

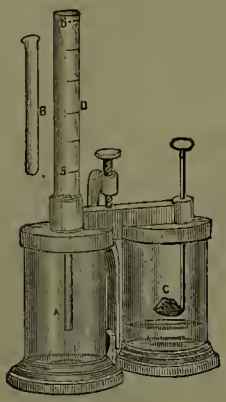
Absorptionmeters.—(See Apparatus, Gas, No. 1486.)

1201. **Absorption Blocks.**—Schleicher & Schull's, No. 573. Made from paper purified by acid; used in calorimetric determinations. Per 100 blocks.....$1 75

1206. **Absorption Papers.**—Schleicher & Schull's, No. 571, for milk analysis; for determination of fat. In strips of 65 x 560 mm., in pasteboard boxes, containing 50. Per box$1 75

1221 **Acetometers—Otto's.**—For determining percentage of acetic acid in vinegar. Each$1 50

Acidometers—Fox.—For the rapid determination of the quantity of acid in wines. Complete in wooden box. Each$15 00



1226



1231

Acidometers—Twitchell's.—For the rapid determination of the percentage of acid in wines and vinegar. Complete in wooden box, with reagent and directions.

1226. For wines and ciders. Each$12 00

1227. For vinegar. Each 12 00

Acid Pumps.—(See Pumps.)

1231. **Acidometer—Leo's.**—For vinegar; very simple and accurate.....$3 00

1236. **Adapters.**—For connection of retorts to receivers, etc.; of light glass, straight form; 6 to 8 inches long.

Diameter, large end, inches	½	1	1½	2	2½	3
Diameter, small end, inches	¼	⅜	½	⅝	¾	¾
Each	$0.25	.30	.35	.40	.45	.50

1237. **Adapters.**—Like preceding, but bent. Same prices.

Air Pumps.—(See Pumps.)

1251. **Air Testers.**—Wolper's latest construction. Pocket instrument, for determining the carbonic acid in school rooms, factories, mines, etc. Each.....$5 00

Alcoholometers.—(See Hydrometers and Stills.)



1236-1237



1261

1261 **Alembics.**—Of Bohemian glass, the top ground air-tight to the body.

Capacity, ounces	2	4	8	16
Each	$0.50	.75	1.00	1.50

(See also Stills, No. 6271.)

Alkalimeters.—(See Apparatus for Carbonic Acid.)



1286



1288

1276. **Amalgam Plates.**—Made of the best Lake Superior copper, well and uniformly coated with refined silver, for retaining the finest particles of gold in the battery or sluice. Guaranteed to have the full weight of silver called for. Made with ½, 1, 1½ or 2 ounces of silver per square foot. Prices quoted on application.

1286. **Annealing Cups.**—Battersea make; for gold; of correct porosity and perfectly smooth.

Size	A	B	C
Top diameter, inches	1⅛	1¼	1⅜
Height, inches	1⅜	1⅜	1⅝
Per dozen	$1.00	1.00	1.00

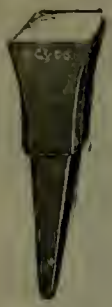
1288. **Annealing Cups.**—Denver make; white, smooth and durable.

No.	0	1	2
Diameter and height, inches	1⅛	1¼	1½
Per dozen	$1.00	1.00	1.00

1296. **Annealing Cup Covers.**—To fit any of the above size cups. Per dozen.....$0 25



1311



1313



1315

1311. **Anvils.**—Of steel, square shape, flat to lay on the table.

Size, inches square	1½	2	2½	3	4
Weight, pounds, about	⅜	¾	1¾	2¾	4½
Each	$0.50	1.30	1.50	2.00	3.00

1313. **Anvils.**—Of steel, like the above, but with one corner rounded and with point to set in block or table.

Weight, about lbs.	½	1	2	3	4	6
Each	$0.60	.75	1.25	1.75	2.50	3.50

1315. **Anvils.**—Of steel, bick shape, square face.

Weight, about lbs.	¼	½	1	2	3	4	5
Each	$0.25	.45	.85	1.50	2.25	3.00	4.50

1317. **Anvils.**—Regular form, to set on table.

Face, length, inches	4	5	5½	6¼	7	8
Weight, about lbs.	5	10	15	20	30	40
Each	$2.00	2.75	3.25	4.00	4.50	5.25

1318. **Anvils and Vises Combined.**—Prices from.....$2 00 to $5 00



1326



1327

Apparatus—Arsenic.—Marsh. For the detection of arsenic; with glass faucet and jet; on stand.

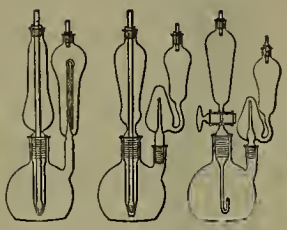
1326. Complete$2 25

1327. Glass bulbs alone 50

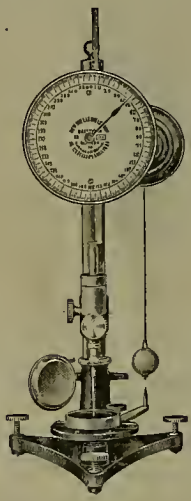
1328. **Apparatus—Arsenic.**—Fresenius & Otto. Each 80



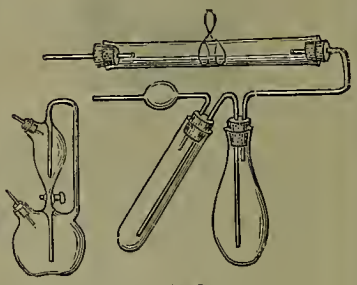
1336



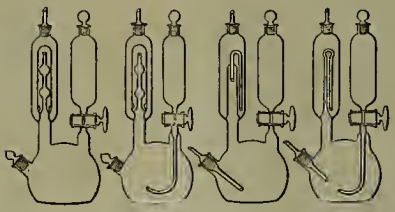
1340-2-3



1331



1338 1339



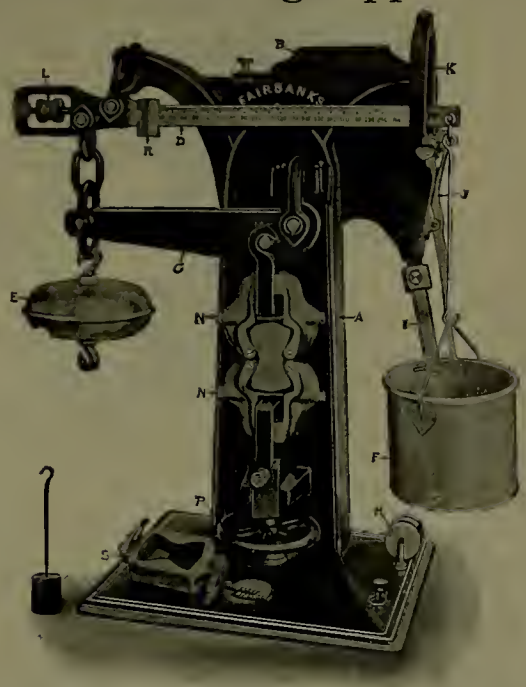
1344-5-6-7

1331. **Apparatus—Asphalt Test—Penetrometer.**—This instrument measures the consistency of asphalt cement or similar material by determining the depth to which, under a definite load and during a given time, a standard needle will penetrate. This depth is measured by tenths of a millimeter and the time is measured by a clockwork attachment fixed to the standard of the apparatus.

Apparatus—Carbonic Acid.—Alkalimeters. For the estimation of carbonic acid in ores, minerals, chemicals, etc. Of these we have:

1336.	Fresenius & Will	$ 0 50
1338.	Kipp	1 75
1339.	Berzelius	75
1340.	Geissler	1 50
1341.	Geissler, new form	2 00
1342.	Erdman	1 50
1343.	Mohr	1 25
1344.	Schrodter	1 75
1345.	Schrodter, with tube	2 00
1346.	Rohrbeck	1 50
1347.	Rohrbeck, with tube	1 75
1348.	Rose	1 50
1350.	Scheibler, complete apparatus	30 00

Cement Testing Apparatus



1358

1358. **Cement Testing Machine—Automatic—Fairbanks.**—Constructed on the scale principle. The weight is applied by a stream of shot, so there is no sudden strain, the supply being cut off automatically the moment the briquette breaks. This machine is recognized as the standard. Capacity, 1000 lbs.; size, 12 x 24 inches. Complete $110 00



1359

1359. **Mold—Briquette.**—Improved form, single, for use with above. Each $4 00

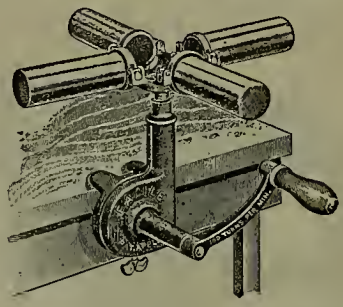
1360. **Mold—Briquette.**—Similar to 1359, but in gang of four, per gang $16 00

1361. **Apparatus-Cement—Vicat Needle.**—For indicating the setting of cement. It is provided with a plunger 1 centimeter in diameter for testing consistency of the mortar, and a needle for testing the time of setting. With mold four inches in diameter and four inches high. Complete with two boxes and one thermometer graduated to 1/5° $26 00

1362. Extra needles 1 75



1366



1371



1367

1366. **Apparatus—Cement.**—Schuman's Specific Gravity Flask, each.....$2 25

1367. **Apparatus—Cement.**—LeChatelier's Specific Gravity Bottle, each.....$2 00

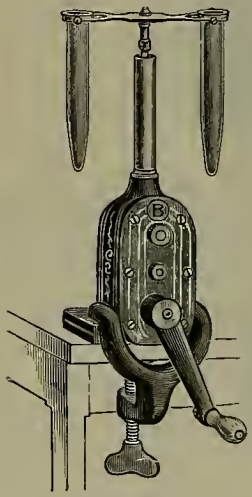
1371. **Apparatus—Centrifuge—Hand.**

This small machine is designed for the purpose of testing oil by centrifugal action; is especially adapted to the testing of crude oil. It is made in two sizes, the smaller one for 2 tubes, the larger for 4 tubes, of 100 cc. capacity; these tubes are especially constructed to give the best results.

a. Single arm, for 2 tubes, each$4 00

b. Double arm, for 4 tubes each 6 00

Prices do not include the tubes.



1373



1376

1373. **Apparatus—Centrifuge—Hand.**

For urine, sputum, milk and oil analysis; giving 3,000 revolutions per minute.

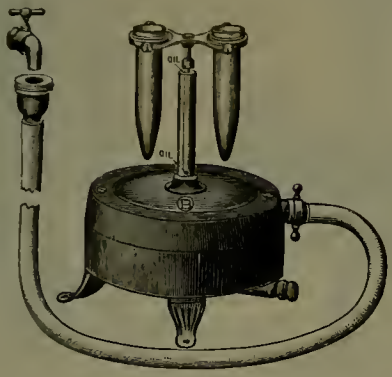
a. Single arm, for 2 tubes of 50 cc., each$12 50

b. Double arm, for 4 tubes of 50 cc., each 15 00

1376. **Apparatus—Centrifuge—Electric.**

For blood, sputum and milk analysis, with patented safety tube holders. For either direct or alternating current of 110 volts, with rheostat for speed control.

Constructed with ball-bearings, assuring quiet running and high speed efficiency. With an absolute radius of 6¾ inches on the arm and tube. The new patented safety tube holders prevent the aluminum and glass tubes from flying out. For 50 cc. tubes. Complete with 6 feet of electric cord and plug, but without tubes $30 00



1380

1380. **Apparatus—Centrifuge—Water Motor.**
For the rapid and convenient sedimentation of solids in urine and other fluids. Perfect mechanical construction, absolutely noiseless; contact parts can not become rusted. Needs no attention and may be left running constantly. It is the simplest and most efficient centrifuge yet offered.
a. Single arm, for 2 tubes of 50 cc., each $17 00
b. Double arm, for 4 tubes of 50 cc., each 19 00
No tubes are furnished with centrifuges except when it is so stated.



1383



1384

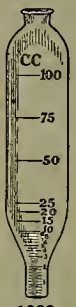


1386



1387

1383. Hæmatokit, with tubes for examination of blood and sputum $4 50
1384. Plain glass tubes, 15 cc. Each 25
1385. Plain glass tubes, 50 cc. Each 50
1386. Graduated glass tubes, 15 cc. Each 50
1387. Graduated glass tubes, 50 cc., for Centrifuges 1373, 1380, 1393, 1394. Each ... 80



1388


1390

1388. Tubes, graduated 100 cc., for apparatus 1371, each $2 00

1389. Tubes for oil, accurately graduated, with lip.

Capacity, cc.	100	200	400
Each	$2.00	$2.50	$3.00

1390. Tubes, for centrifuges 1394-1396, each $2 00

1391. Pipettes, for filling tubes, Each 25


1393

1393. Apparatus—Centrifuge.—Purdy's Electric Centrifugal Machine. Operated by a 110-volt direct or alternating current; carrying two metal shields and two 50 cc. graduated glass tubes for testing coal oil. Each $37 50



1394



1396

1394. **Apparatus—Centrifuge.**—For the determination of sediment in crude oil, according to the method of Dr. Starke, as used by the Standard Oil Company in its laboratory at Richmond, California. The method is based upon the principle that carbon bisulphide, when added in definite proportions to crude oil or to residuums, prevents the precipitation of carbonaceous matter, such as asphaltine, along with the sediments. By thus preventing the precipitation of the asphaltine, the sand and water can be accurately separated, and with the aid of the centrifuge separator can be quickly determined. Full description of the method accompanies each instrument. These centrifuges require a small motor of about one-half horse power. The prices given are not inclusive of the motors, but would include a pulley if the centrifuges are to be driven by a horizontal motor.

Shield.—To protect operator against any chance of accident; properly adjusted for each apparatus, furnished with same.

Number of tubes	2	4	6	8
Each	$100.00	115.00	130.00	150.00

1396. **Apparatus—Centrifuge—Hand.**—Made on Dr. Starke's model, on the same lines as No. 1394.

Number of tubes	2	4
Each	$55.00	65.00

It is with pleasure that we introduce in this catalogue, among the apparatus used in the oil supply business, the Starke Centrifuge used for the determination of sediment and water in crude oil, which, after many years of service, is still the standard machine used by the largest oil companies in America.

The method of Dr. Starke, as used by the Standard Oil Company in its laboratories at Richmond, Cal., is based upon the principle that carbon bisulphide, when added in different proportions to crude oil or to residuums, prevents the precipitation of carbonaceous matter, such as asphaltine. The sand and water can be accurately separated, and with the aid of the Centrifuge can be quickly determined.

In selecting a Centrifuge for this work, there are several points which are most vital to the continued and successful operation of the above, namely: efficiency of testing, safety, proper and constant speed, massiveness, and simplicity of means for the easy clearing of broken graduates and test tubes.

Efficiency of Testing—

As we have designed our machines, the tubes comes to rest parallel with the perpendicular, so that in taking the graduates from the shields there is no agitating of the measures of precipitation. This is not the case, however, with several so-called centrifugal machines that are now on the market, whose tubes come to rest at angles of 45 or 50 degrees from the perpendicular, with the result that after taking the graduates from the tubes to read the per cent of precipitation, the error is from 2 to 8 per cent, according to the amount of foreign matter in the oil.

Safety of Machines—

Every power machine that we make is tested to a speed of 2,500 R. P. M., which is 1,300 revolutions over the speed which is necessary to precipitate any sediment or foreign matter contained, and with all our power machines we furnish a shield which is sufficiently strong to overcome any breakage of the tubes, while rotating, due to excessive speed or to carelessness of operator in laying tools or other matter on the machine in starting up. We also use the best house materials in making the tubes; we have found by testing to the breaking point that aluminum and like alloys have not sufficient tensile strength for this service.

Again, we do not directly connect our centrifuges to motors, and do not advise putting the motors nearer than 6 feet to the machines. The reason of this is that some of the liquids tested, like gasoline, benzine and other highly inflammable oils, ignite from sparking of the brushes, and as it is impossible to always keep these liquids from dripping from the machine and falling on the motor, a destructive fire is liable to start at any time, due to the above causes.

Our hand machines are so constructed that the tubes, while rotating, are above the operator's head, making a shield unnecessary.

In the end of all our holding tubes we have provided means for taking out the graduated tubes, if, by some mischance, they should break.

We have found by many thousands of tests that variable speeds are not necessary in centrifuge testing; in fact, we have found that, due to slipped and incorrect placing of shifting levers, in the variable speed type of machine, different readings may be had from the same liquids, whereas with a constant speed the readings on the same liquids are always the same.

The machines are made on heavy, massive lines. The base alone weighs nearly one hundred pounds. The tubes are hung on bronze supporting plates, accurately machined all over in order to insure perfect balance. The supporting plate is mounted on a substantial steel shaft, running in hardened roller bearings, insuring an easy running machine. These ball bearings are so constructed that they can be adjusted for wear. The pulleys are flanged so as to keep the belts in perfect position.

Hand Machines—

Owing to the fact that it is not possible to have motive power in all places, we have designed a hand operated machine which will give accurate reading of the sediment or water contained in the oil.

This machine is made in two sizes, 2 tube and 4 tube, with adjustable ball-bearing, machine-cut gears, and provided with means for taking up the wear both in the ball bearing and in the gear teeth; it also has the advantage over other machines intended for hand operation, that it can be set up alongside a vertical wall, or derrick leg, dispensing with a horizontal bench to place it on. The tubes are the same as in our power machines, accurately balanced and provided with means for removing the broken graduates.

It is made on the same massive and graceful lines as our power-driven Centrifuge, finely nickel-plated and finished in black, and makes a handsome addition to any chemist's or engineer's office.

Apparatus—Chlorine.—For the absorption of chlorine in the analysis of manganese, etc.

1401. Complete with clamp and mounted on stand. Each $3 00

1402. Glass part alone 1 00



1402

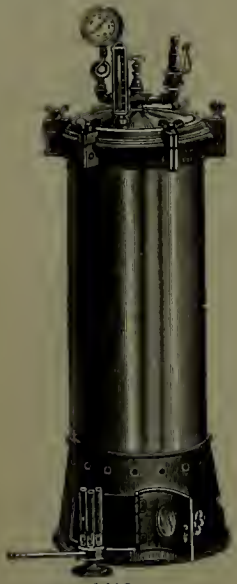


1404

1404. **Apparatus—Chlorine.**—For the generation of chlorine gas; consisting of ring-neck flask, with perforated stopper of rubber, safety tube, delivery tube, bottle, etc.

Capacity, pints	½	1	2	4
Each	$1.00	1.25	1.50	1.75

1406. **Apparatus—Chlorine.**—For tests in chlorination for experimenting on 30 pounds of ore. Each $5 75



1416



1428



1441

1416. **Apparatus—Digesting** (Autoclave).—For sterilizing under steam pressure. The boiler is of extra heavy copper, tin lined, 24 inches deep and 11 inches diameter, with a perforated rack inside. Nickel-plated cast-brass lid, made steam-tight and held in position by six screw clamps. Graduated to stand a pressure of 5 pounds to the square inch.

Price, including a 3-tube burner $50 00

1428. **Apparatus—Displacement—Regnault's** 2 00
1429. **Apparatus—Displacement—Robiquet's,** ½ litre 1 50
1430. **Apparatus—Displacement—Guibourg's.**—A separating funnel with glass stopcock, ground into a bottle which has a glass stopcock at the bottom.

Size.	1 pt.	1 qt.	½ gal.
Each	$3.75	4.75	6.50

Apparatus—Distilling.—See Receivers, Stills, Tubes.

Apparatus—Electrolytic.—For illustrating lectures, etc.

1441. Water Composition—To show that oxygen and hydrogen combine only in same proportion as developed. Each $2 75
1442. Water Composition—Like preceding, but with two stopcocks. Each. 3 75


1443


1444


1450


1451


1452

1443. Water Decomposition—Plain tube, with 2 stopcocks and electrodes. Each 5 00
1444. Water Decomposition—Tube graduated on both branches into cc. with 3 glass stopcocks. Each 7 25
1450. Hydrochloric Acid—For its decomposition by sodium. Each 3 50
1451. Hydrochloric Acid—To determine the elementary gases contained in one volume of the acid. Each 5 00
1452. Hydrochloric Acid—For its decomposition; with two carbon electrodes. Each 5 50


1453


1455


1457

1453. For decomposition of water; showing intensity of current; on wooden stand. Each 4 00
1454. For electrolysis of water, hydrochloric acid, etc.; glass part only. Each.. 3 00

1455. For electrolysis of water. Each 1 50
1456. For volumetric analysis of mixed gases from the decomposition of hydrochloric acid. Complete 8 00
1457. Ammonia Composition—To show that 3 volumes of hydrogen and 1 volume of nitrogen form 2 volumes of ammonia gas. Complete..... 4 00
1461. **Apparatus—Elutriation—Noebel's.**—For the mechanical analysis of soils. Glass part alone 4 50



1462

1462. **Apparatus—Elutriation—Knopf's.**—20 inches high and 3¼ inches diameter, with three stopcocks. Complete 12 00

Apparatus—Extraction—Sohxlet's.—With flask and condenser.

Size	Small	Medium	Large
Length of body, inches	6¼	7¼	8½
Diameter, inches	1¼	1½	2
Capacity, cc.	60	100	200
1471. Complete, each	$2.25	2.50	3.50
1472. Extracting cylinder only	1.20	1.50	2.00



1471



1472



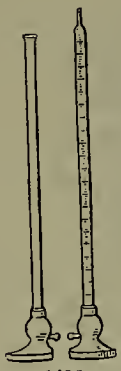
1473

1473. **Apparatus—Extraction—Sohxlet's.**—With ground joints and spiral condenser.

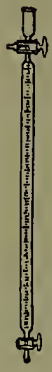
Size	Small	Medium	Large
Complete, each	$3.50	4.00	5.00


1487


1488


1495


1496


1498

Apparatus—Gas Analysis—Absorption Tubes.

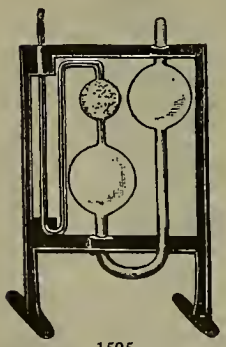
1486. Bunsen's, with bulb, graduated. Each $1 00
1487. Babo's, filled with glass beads. Each 1 25
1488. Emmerling's, filled with glass beads. Each 1 50

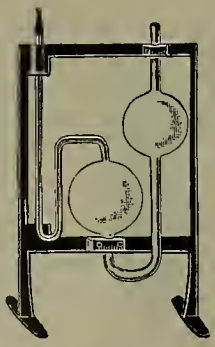
Apparatus—Gas Analysis—Burettes.

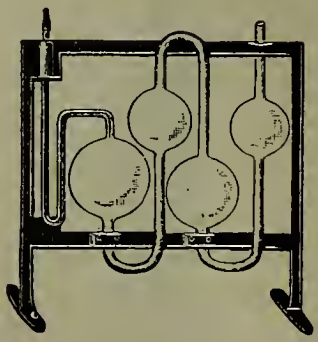
1495. Hempel's, on wooden base, without stopcocks. Per pair $ 4 75
1496. Hempel's, with wooden base. Per pair 7 50
1497. Bunte's, with water-jacket and 2 stopcocks. Each 5 75
1498. Bunte's, without water-jacket. Each 4 25
1500. Winkler's, with supports. Each 12 00

Apparatus—Gas Analysis—Pipettes.

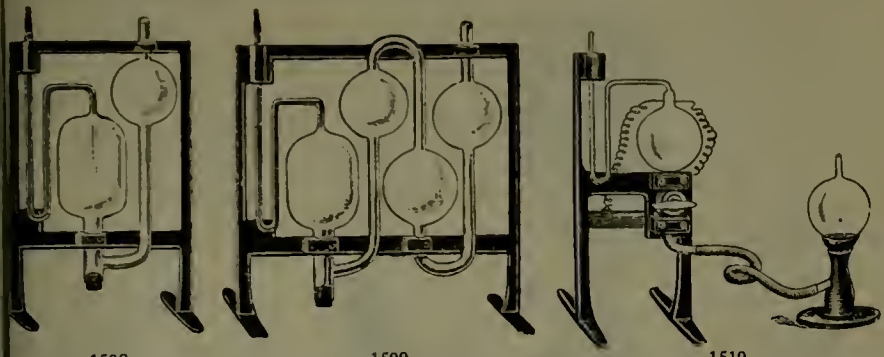
Hempel's.—For absorption, mounted on iron stand.


1505


1506

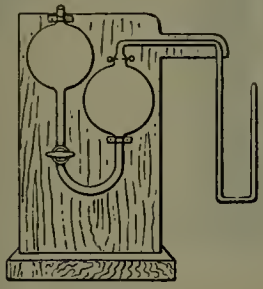

1507

1505. With glass beads in upper bulb; on iron stand. Each $4 00
1506. Simple, for liquids. Each $2 50
1507. Compound, for liquids. Each 4 00

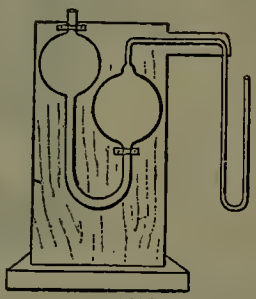


1508 1509 1510

1508. Simple, for solids. Each $2 50
1509. Compound, for solids. Each 4 00
1510. Hempel's, for explosion. Complete on stand. Each 7 50
1511. Hempel's, for explosion; glass parts only 2 75

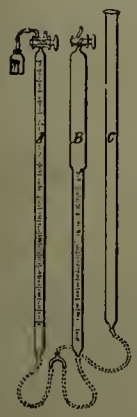


1512

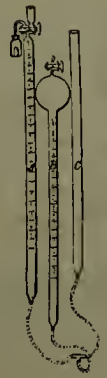


1515

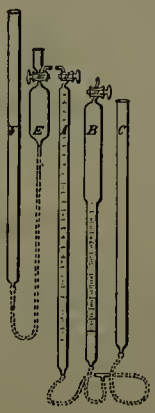
1512. Hempel's, for explosion; on wooden stand. Each $4 00
1515. Hempel's, for liquid reagents; on wooden stand. Each 2 50



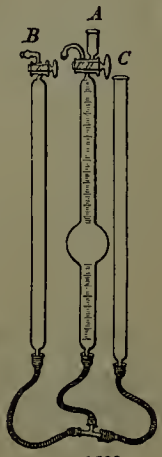
1517



1518



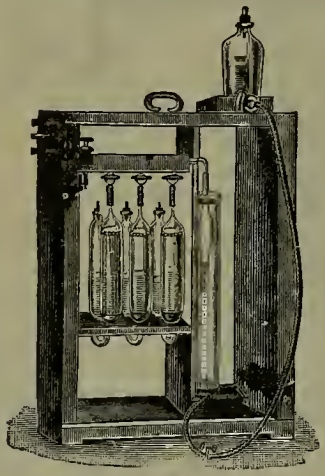
1519



1520

Apparatus—Gas Analysis—Volumeters.

1516. Lunge's, for the analysis of nitre and other readily soluble salts. Each...$ 9 00
1517. Lunge's, for the analysis of difficultly soluble substances, like pyrolusite, chloride of lime, etc. Each 10 50
1518. Lunge's, for the analysis of both difficultly and easily soluble substances; pyrolusite, charcoal, chloride of lime, plaster, urea, urine, carbonates and nitrates. Each 11 00
1519. Lunge's, for the analysis of saltpetre, nitrose, dynamite, nitrocellulose, etc. Each 13 00
1520. Lunge's Universal. Each 11 00



1526

Apparatus—Gas Analysis—Orsat Muencke's.—For technical analysis of gases, especially those of furnace and flues.

1526. Complete, in case, as illustrated$25 00
1527. Glass parts, only 19 00
1528. Extra absorption pipettes. Each 2 00
(See, also, No. 1336, etc., and 3351, etc.)



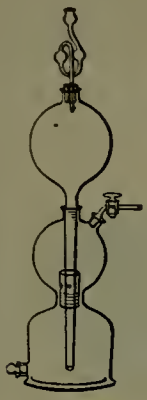
1553

Apparatus — Generating — Babo's Sulphuretted Hydrogen. — The generation is stopped by simply raising the bulb containing the sulphuret of iron and renewed by depressing it again.

1553. Complete, with stand $2 00
1554. Glass part alone 1 00



1555



1556



1561



1563

1555. **Apparatus—Generating.**—Complete with lead basket.

Capacity, pints	1	2	4
Each	$1.75	2.25	2.75

1556. **Apparatus—Generating—Kipp's.**—For the production of sulphuretted hydrogen; the most convenient for the laboratory.

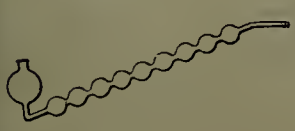
Size	Small	Medium	Large	Extra Large
Capacity	½ pt.	1 pt.	1 qt.	½ gal.
Each	$3.50	4.00	5.00	6.00

1561. **Apparatus—Generating—Gasogene Briet.** — For making carbonated or aerated water. Invaluable in the country or in the sick room, as it produces a water charged with the proper quantity of carbonic acid. Any separate part can be supplied.

Capacity, bottles	2	3	4	6
Each	$7.50	8.50	12.00	16.00

1563. **Apparatus—Generating—Seltzogene.**—For making carbonated waters.

Capacity, bottles	2	3	4	5	6
Each	$5.50	7.00	8.50	10.00	11.50



1571

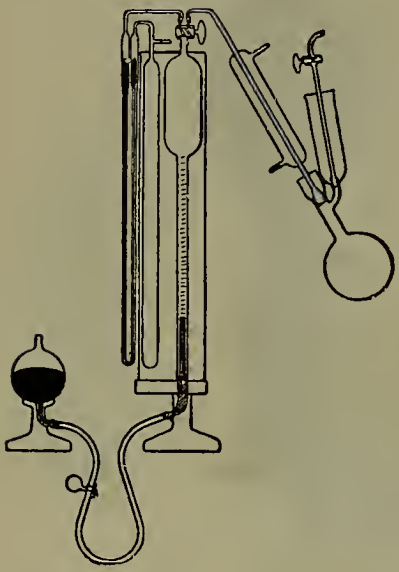


1572

Apparatus—Iron Analysis—Meyer's Tube.

For determination of sulphur in iron or steel by the Bromine method.

1571. Plain tube. Each $1 50
1572. With stopcock. Each 2 75



1573



1576



1579



1586



1592

Apparatus—Iron Analysis—Hempel's.—For the determination of carbon in iron.

1573. Complete on stand as shown $27 50

1574. Glass parts only 12 00

1576. **Apparatus—Iron Analysis—Goetz's.**—Bulb for the determination of phosphorus. Each 90

1577. **Apparatus—Iron Analysis—Corleis'.**—Flask for sulphur determination; capacity, 750 cc. Each 3 50

1579. **Apparatus—Iron Analysis—Rothe's.**—Pipette for the rapid estimation of iron by means of ether. Each 12 00

Apparatus—Milk Analysis.

1586. **Burettes.**—Rose's, for the determination of fat; 100 cc. in ½. Each..... 2 75

1591. **Creamometers.**—Chevalier's, giving direct percentage of cream; with red lines. Each 1 00

1592. **Cream Tubes.**—Giving direct percentage of cream; on foot. Each 50

1593. **Cream Tubes.**—Giving direct percentage of cream; without foot. Each... 40

1596. **Lactoscopes.**—Feser's, for the rapid determination of fat; with pipette; in case 3 50

1598. **Lactobutyrometers.**—Marchand's, on foot. Each 1 00

1601. **Piascopes.**—Heeren's, for testing by the color of the milk; with directions. Each 60

1606. **Babcock's Milk Testers.**—For hand power. Each machine contains a full set of milk bottles, skim milk bottle, pipette, acid measure and acid.

Number of bottles	4	6	8	10
Each	$8.00	9.00	10.00	12.00

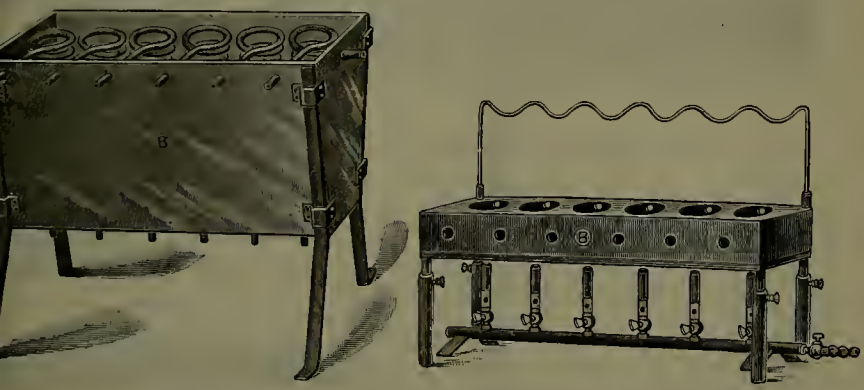
1607. Babcock Test Bottles, 10%; per dozen $1 50
1608. Babcock Test Bottles, 30%; per dozen 3 00



1593 1596 1601 1607

Apparatus—Nitrogen Determination—Kjedahl's Apparatus. — Consisting of condenser of heavy polished copper 32 inches long, 14 inches deep, 6 inches wide on top and 4 inches at bottom, with 6 condensing tubes of block tin; digesting shelf of iron, with 6 burners, each provided with stopcock.

1621. Complete as described $40 00



1622 1623

1622. Condenser only 25 00
1623. Digesting shelf only 16 00

Apparatus—Nitrogen.

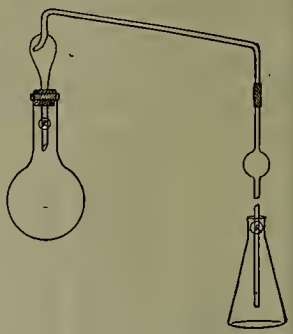
1626. Bunte's Nitrometer, improved form 5 00
1627. Lunge's Nitrometer, graduated 50 cc. in 1/10, without support 5 00
1628. Horn's Nitrometer, with funnel at top and level tube 7 50



1631



1638



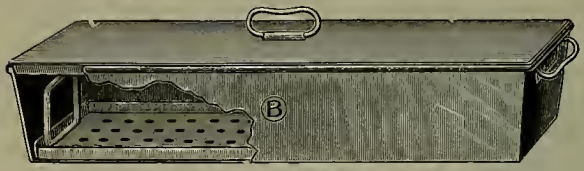
1637

1631. Noellner's Apparatus, as illustrated. Each 2 00

Apparatus Nitrogen.—All of resistance glass.

1636. Kjeldahl-Wagner's, complete 2 75
1637. Improved form 3 25
1638. Stutzer's form 4 00
1639. Treadwell's 8 00

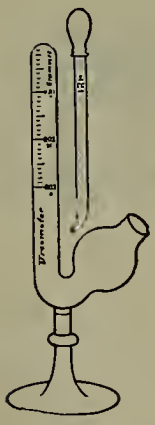
(See also Gas Volumeter No. 1516.)



1656



1651



1684



1681



1661

1651. **Apparatus—Sterilizing—Arnold's Milk Sterilizer.**—For the preparation of milk for feeding small children. Can be used for pasteurizing also. Made in several sizes.

Size No.	7	8	10
Holding, bottles	7	8	10
Each	$3.00	3.50	4.00

1652. Bottles alone, capacity 6 ounces. Per dozen $1 25

1656. **Apparatus—Sterilizing.**—For sterilizing instruments, etc. Of heavy copper, tin-lined, with perforated tray.

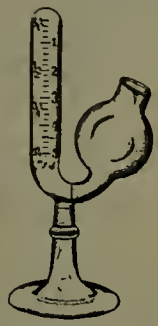
Size 11 x 5½ x 1¾ inches. Each $3 75
" 13 x 6 x 2¼ " " 4 25
" 16 x 5 x 3 " " 4 50

1661. **Apparatus—Sterilizing.**—Gilbert's, of heavy copper, tin-lined, with folding legs.

Size 16 x 5 x 2½ inches. Each $4 00
" 16 x 6 x 3 " " 4 50

(See also Incubators, No. 4476.)


1688


1692


1692


1696


1706

Apparatus—Urinary.

1681. **Albumenometer.**—Esbach's, for the quantitative estimation of albumen in urine. Each $0 75

1684. **Saccharometers.**—Einhorn's Fermentation Tube, for the estimation of sugar in urine; complete; marked test tube. Each 75
Per set of two, in box, with graduated test tube 1 50

1688. **Fermentation Tubes.**—Plain, 5 inches high, without divisions. Each..... 30

1691. **Ureometer.**—Doremus, for the estimation of urea by action of sodium hypobromite. Each 1 25

1692. **Ureometer.**—Doremus, like preceding, on foot. Each 1 50

1693. **Ureometer.**—Doremus-Hind. The 1 cc. pipette is connected to ureometer by a stopcock; a greater accuracy is obtained. Each 3 00

1696. **Urinometer.**—Dr. Squibbs', for determining the specific gravity of urine; corrected for temperature. Each 1 25

1698. **Urinometer.**—Milk glass scale, graduated jar 5½ inches long. Scale 0 to 60. With directions. Each 1 00

1706. **Urinometer Cylinder and Sediment Glass Combined.**—Very convenient. 6 x 1½ inches. Each 50

1721. **Asbestos Board.**—In sheets 40 x 40, varying in thickness from 1/16 to ½ inch. Per pound 25



1746



1749



1771

1723. **Asbestos Cloth.**—Unaffected by acids, fire, etc. Per yard, 42 inches wide.. 3 00

1725. **Asbestos Cord.**—In balls, for suspending metals, retorts, crucibles, etc., in contact with fire. Per pound 1 25

1727. **Asbestos Fiber.**—For filtering. · Per pound 1 00

1736. **Aspirators.**—Of glass, Liebig's form, with syphon and funnel tube.

Capacity, ounces	8	16	24	32
Each	$1.25	1.50	1.75	2.00

1746. **Aspirator Bottles.**—Tubulated on foot, plain shape.

Capacity, pints	½	1	2	4
Each	$0.50	.60	.80	1.00
Capacity, gallons		1	2·	2½
Each		$1.50	2.50	3.00

1747. **Aspirator Bottles.**—Like preceding, but with glass stopper.

Capacity, pints	½	1	2	4	gals. 1	2	2½
Each	$0.75	.75	1.00	1.50	1.75	2.50	3.00

1749. **Aspirator Bottles.**—With glass stopcock in outlet, plain opening on top.

Capacity, pints			1	2	4
Each			$1.50	1.75	2.25
Capacity, gallons	1	1½	2	2½	3
Each	$3.00	3.50	4.00	5.00	7.00

1750. **Aspirator Bottles.**—With glass stopcocks ground into the outlet, and with glass stopper in upper opening.

Capacity, pints			1	2	4
Each			$1.75	2.00	2.50
Capacity, gallons	1	1½	2	2½	3
Each	$3.25	3.75	4.50	5.50	7.50

Azotometers.—(See Apparatus, Nitrogen, No. 1621.)

1771. **Bags—Rubber.**—For gas. Of pure gray rubber.

Capacity, gallons ..	½	1	2	3	5	6	8	10
Each	$1.50	2.00	2.50	3.25	4.50	5.00	6.00	7.50

1781. **Bags—Sample.**—Of Manila paper, very strong; for ores.

Width, inches	4	5	6	7	7¾
Length, inches	6¾	7½	8½	9¼	11
Per 100	$0.25	.30	.35	.40	.45

1783. **Bags—Sample.**—Of extra Manila paper, with improved metal fastenings, for cracked or ground ores.

Width, inches	3	3½	4	4½	5	6
Length, inches	5	6	7	8	9	10
Capacity, ounces	1	2	4	6	8	12
Per 100	$0.70	.85	.95	1.15	1.50	1.75



1801



1826

1786. **Bags—Sample.**—For ores, of drilling (canvas).

Size, inches	5¼x9½	7x9½	9x14	11x14
Per 100	$5.00	6.00	7.50	9.00

1787. **Bags—Sample.**—For ores, of heavy duck.

Size, inches	5¼x9½	7x9½	9x14	11x14
Per 100	$6.50	7.50	10.00	11.50

Barometers—Aneroid.—For altitudes. Pocket sizes; very convenient and accurate; in morocco cases.

1801. Bronze frame, 1¾ inches face, raised ring, measuring to 8,000 feet.....$ 9 00
1802. Gilt frame, 1¾ inches face, raised ring, with thermometer, measuring to 12,000 feet 17 50
1803. Gilt frame, 1¾ inches face, raised ring, with thermometer, measuring to 16,000 feet 19 00
1804. Bronze frame, 2½ inches face, raised ring, with thermometer, measuring to 12,000 feet 18 00
1805. Bronze frame, 2½ inches face, raised ring, with thermometer, measuring to 16,000 feet 20 00
1808. Surveying, bronze frame, 3 inches face, raised ring, with thermometer, measuring to 12,000 feet. A sliding vernier shows a difference of 5 feet; a glass magnifier allows accurate readings 42 00

Barometers—Aneroid—Holosteric.—Used as weather indicators or atmospheric pressure measures.

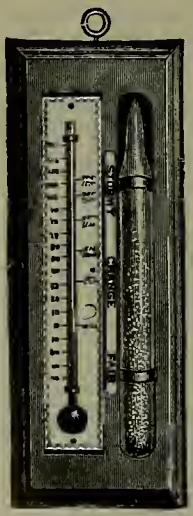
1816. Open metallic dial, 5 inches face, 2 thermometers.....$17 00
1817. " " " 7 " " 2 " 21 00
1818. " " " 8 " " 2 " 28 00
1819. Open dial, paper scale, 4 inches face 4 00
1820. " " " " 5 " " 6 00
1822. Closed metallic dial, 5 inches face, with 2 thermometers, reading in inches and centimeters 40 00
1823. Closed dial, 5 inches face, with 2 thermometers..... 12 00
1826. Open dial, 5 inches, enameled face 9 00



1833



1831



1851





1841

1831. **Barometers—Mercury—Syphon.**—On polished wood support, with milk glass scale 6 00

1832. Same as preceding, with thermometer 8 50

1833. Bunsen's Syphon, graduated in millimeters 3 00

1834. **Barometers.**—Gay-Lussac's, with tight patent stopcocks, allowing of easy filling and emptying; graduated into millimeters. This form is very convenient for shipment $14 00

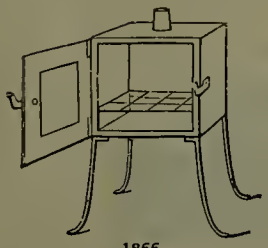
1841. **Barometers—Mercury—Fortin's Form.**—Standard Barometers, U. S. Weather Bureau pattern; tube ¼-inch bore, divided into 1/10 of an inch, reading by vernier to 1/100 inch; mounted on polished oak frame, brass mountings, opal glass reflectors 50 00

1842. Standard Barometer, like preceding, but with millimeter divisions also..... 60 00

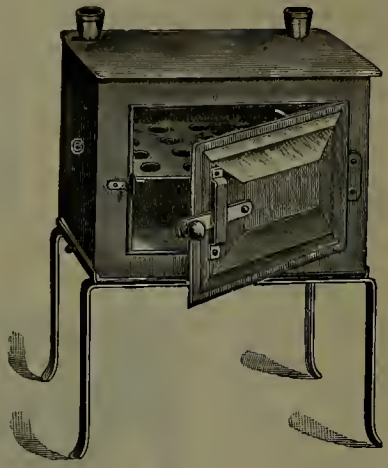
1851. **Barometers.**—Pool's Signal Service or Storm Glass, with thermometer; a very useful instrument which predicts changes of weather 24 hours ahead. Each 25

1861. **Bateas.**—For gold washing; made of Spanish cedarwood, well turned, with bottom burned for showing colors.

Diameter, inches	12	16
Each	$1.50	2.00



1866



1871

Baths—Air.—Drying ovens, made of polished copper; single wall, with tubulations for thermometer and gas regulator, extra sheet-iron bottom, four detachable iron legs.

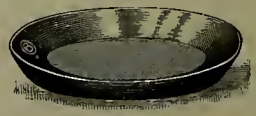
1866. Size 6 x 8, with 1 removable shelf. Each..... $ 5 00
1867. " 8 x 10, " 1 " " " 7 00
1868. " 10 x 12, " 2 " " " 10 00

Baths—Air.—Drying ovens, made of polished copper; similar to preceding, but with double walls.

1871. Size 6 x 8, with 1 removable shelf. Each..... $ 7 50
1872. " 8 x 10, " 1 " " " 10 00
1873. " 10 x 12, " 2 " " " 12 50

Baths—Air.—Of polished copper, double walls and similar to preceding, with the addition of a water bath top.

1876. Size 6 x 8, with 1 removable shelf. Each..... $11 00
1877. " 8 x 10, " 1 " " " 13 00
1878. " 10 x 12, " 2 " " " 14 00



1883



1891



1892

1881. **Baths—Sand.**—Of sheet iron, deep form.

Diameter, inches	3	4	5	6	8	10
Each	$0.15	.20	.25	.30	.60	.85

1883. **Baths—Sand.**—Of sheet iron, shallow form.

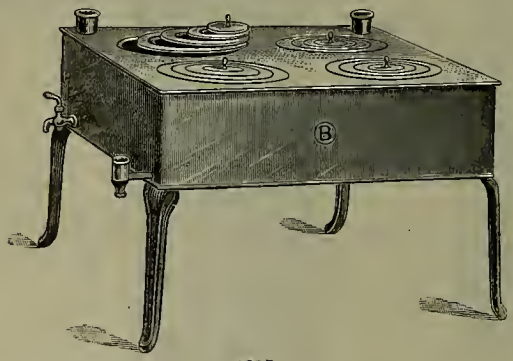
Diameter, inches	3	4	5	6	8	10
Each	$0.12	.15	.20	.25	.35	.50

1891. **Baths—Water.**—Round, of polished copper; tin lined, with concentric rings, cover and steam escape.

Diameter, inches	4	5	5½	6	8	10
No. of rings	3	4	5	5	6	7
Each	$0.90	1.00	1.25	1.50	2.25	4.50

1892. **Baths—Water.**—Similar to preceding, but with constant water level.

Diameter, inches	5	5½	6	8	10
No. of rings	4	5	5	6	7
Each	$2.00	2.25	2.50	3.00	5.00



1897

Baths—Water.—Rectangular; made of heavy copper, tin lined. With stopcock to draw off the water, and Kekule constant water regulator. With extra sheet iron bottom and supported by four detachable legs.

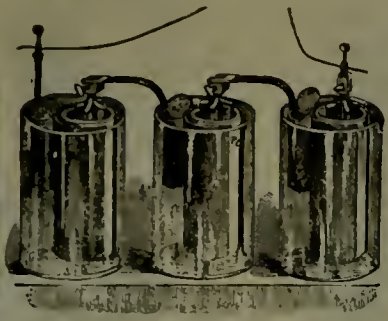
1896. Size 23x13½ inches, three openings of 6 inches and four of 4 inches diameter, with rings and cover. Each$20 00

1897. Size 13½x13½ inches, with four openings of 5 inches diameter, with rings and cover. Each$15 00

1898. **Baths—Water—Griffin's.**—For hot filtration and evaporation.
Size 13x7x5 inches, tin lined, copper funnel and 1 hole with 5 rings; constant water level; extra sheet iron bottom; mounted on 4 legs. Complete.....$12 00



1916



1931



1926



1917

Batteries—Bunsen Cell.

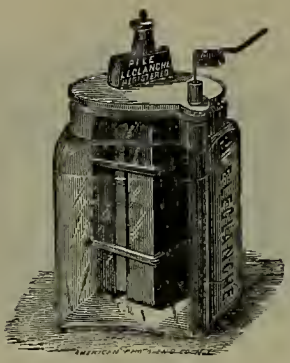
	Capacity	1 qt.	2 qts.	4 qts.
1916.	Complete cell, each	$1.50	2.00	2.75
1917.	Glass jar, size	4 x 5	5 x 7	6 x 8
	Each	$0.30	.35	.45
1918.	Carbon	.10	.20	.40
1919.	Carbon connector, platinum contact	.25	.30	.50
1920.	Carbon clamps	.15	.20	.25
1921.	Porous cups	.15	.20	.25
1922.	Zinc with connector	.60	.70	.90

Battery—Crowfoot or Gravity.

	Size of jar	5 x 7	6 x 8
	Capacity	2 qts.	4 qts.
1926.	Complete cell	$1.00	1.20
1927.	Jar	.30	.35
1928.	Zinc crowfoot	.40	.50
1929.	Copper	.30	.40

Battery—Daniell Cell.

	Size of jar	5 x 7	6 x 8
	Capacity	2 qts.	4 qts.
1931.	Complete cell	$1.25	2.00
1932.	Jar	.35	.40
1933.	Porous cup	.20	.40
1934.	Copper, with pocket and connector	.50	.80
1935.	Zinc, with connector	.30	.50



1936



1941

Batteries—Leclanche, Improved Form.

1936.	Complete cell	$0 90
1937.	Jar	20
1938.	Porous cup	60
1939.	Amalgamated zinc	15

Batteries—Grenet.

	Height of bulb, inches	5½	7	8½
	Diameter of bulb, inches	3½	4	5½
	Capacity, pints	½	1	2
1941.	Complete cell	$2.00	3.00	4.00
1942.	Jar (bulb C). Each	.50	.80	1.10
1943.	Carbons Z. Each	.40	.60	.80
1944.	Zincs (K). Per pair	.15	.20	.25

1971. **Batteries—Dry Cell.**—Regular Columbia.

	No.	6	8
	Size	6x2½	8x3½
	Each	$0.35	1.00

1972. **Batteries—Dry Cell.**—Columbia Ignitor.

	Size	6x2½	8x3½
	Each		...

2011. **Beakers.**—Of best Bohemian glass, well annealed, of uniform thickness, straight regular form, without lip.

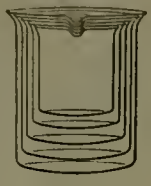
No.	00	0	1	2	3	4	5	
Capacity, cc.	35	45	60	100	150	200	250	
Capacity, oz.	1	1½	2	3½	5	7	8½	
Each	$0.08	.09	.10	.11	.13	.14	.17	

No.	6	7	8	10	11	12	13	14	15
Capacity, cc.	350	500	700	1100	1400	1800	2400	3200	4000
Capacity, oz.	12	17	23	37	47	60	80	108	133
Each	$0.20	.25	.32	.42	.48	.60	.75	.90	1.10

2012. **Beakers.**—Similar to preceding, but with lip. Same prices as preceding.


2013


2014


2018


2021

2013. Beakers.—Plain shape, in nests.

Nest of	3	3	5	6	9	10	12
Capacity, smallest, oz.	1½	2	2	2	2	2	2
Capacity, largest, oz.	3½	5	8½	12	30	37	60
Per nest	$0.30	.34	.65	.85	1.75	2.15	3.20

2014. Beakers.—Lipped, in nests. Same prices as preceding.

2017. Beakers—Griffin's.—Low, wide shape, with lip.

No.	1	2	3	4	5	6
Capacity, cc.	75	150	250	350	500	750
Capacity, oz.	2½	5	8	12	17	25
Each	$0.10	.13	.17	.20	.25	.32
No.	7	8	9	10	11	12
Capacity, cc.	1000	1500	1750	2500	3000	4000
Capacity, oz.	33	50	58	83	100	135
Each	$0.38	.50	.58	.72	1.10	1.26

2018. Beakers—Griffin's.—In nests.

Nest of	3	3	5	5	6	8	10	12
Capacity, smallest, oz.	2½	6	2½	5	2½	5	5	2½
Capacity, largest, oz.	8	12	17	25	33	58	100	135
Each	$0.40	.50	.85	1.05	1.43	2.50	4.30	5.75

2021. Beakers.—Of well annealed glass. Extra tall form, without lip.

No.	0	1	2	3	4	5	6	7	8
Capacity, cc.	120	200	300	400	575	850	1200	1700	2400
Capacity, oz.	4	7	10	13	19	28	40	57	80
Each	$0.11	.13	.15	.20	.26	.35	.45	.58	.76

2022. Beakers.—Extra tall form, in nests.

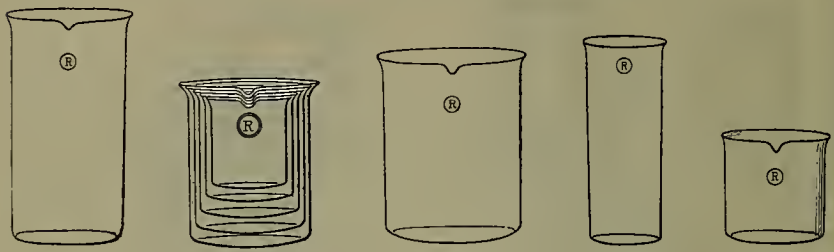
Nest of	3	5	5	6	8
Size of smallest, oz.	7	4	7	7	7
Size of largest, oz	13	19	28	40	80
Per nest	$0.39	.48	1.05	1.50	2.80

Beakers.—Of Resistance glass, regular form, without lip. The nature of this glass enables it to resist sudden changes of temperature and the action of corrosive chemicals. They are marked

TRADE (R) MARK

2026. Beakers.—Of Resistance glass, regular form, without lip.

No.	0	1	2	3	4	5	6
Capacity, cc.	45	60	100	150	200	250	350
Capacity, oz.	1½	2	3½	5	7	8½	12
Each	$0.10	.11	.13	.15	.18	.21	.24
No.	7	8	9	10	11	12	13
Capacity, cc.	500	700	900	1100	1400	1800	2400
Capacity, oz.	17	23	30	37	47	60	80
Each	$0.30	.36	.45	.52	.60	.75	1.00



2027 2029 2032 2035 2037

2027. **Beakers.**—Of Resistance glass, regular form, with lip. Same price as preceding.

2028. **Beakers.**—Of Resistance glass, regular form, plain, in nests.

Nest of	3.	1½ to 3½ oz.	Per nest		$0 34
	3.	2 " 5 "	"		39
	5.	2 " 8½ "	"		78
	6.	2 " 12 "	"		1 00
	9.	2 " 30 "	"		2 10
	10.	2 " 37 "	"		2 60
	12.	2 " 60 "	"		3 85

2029. **Beakers.**—Of Resistance glass, regular form, with lip, in nests. Same prices as preceding.

2031. **Beakers.**—Of Resistance glass, low, wide form, with lip.

No.	1	2	3	4	5	6
Capacity, cc.	75	150	250	350	500	750
Capacity, oz.	2½	5	8	12	17	25
Each	$0.12	.15	.20	.25	.30	.40

No.	7	8	9	10	11	12
Capacity, cc.	1000	1500	1750	2500	3000	4000
Capacity, oz.	33	50	58	83	100	133
Each	$0.52	.63	.75	1.00	1.30	1.75

2032. **Beakers.**—Of Resistance glass, Griffin form, in nests.

Nest of	3	3	5	5	6	8
Size of smallest, oz.	2½	8	2½	8	8	2½
Size of largest, oz.	8	17	17	33	50	50
Per nest	$0.57	.75	1.00	1.65	2.25	2.50

2035. **Beakers.**—Of Resistance glass, extra tall form, without lip.

No.	1	2	3	4	5	6	7	8
Capacity, cc.	200	300	400	575	850	1200	1700	2400
Capacity, oz.	7	10	13	19	28	40	57	80
Each	$0.18	.22	.25	.32	.40	.55	.70	.85

2037. **Beakers.**—Of Resistance glass, extra wide form, with lip; the height and daimeter are the same.

No.	1	2	3	4	5	6	7	8
Dimensions, inches	2	2⅜	2¾	3¼	3⅝	4	4½	4⅞
Capacity, cc.	80	150	200	300	450	600	850	1100
Capacity, oz.	2½	5	6½	10	15	20	28	37
Each	$0.14	.18	.22	.27	.32	.40	.55	.65

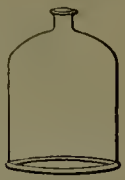

2038


2051


2061


2063


2062


2064

2038. Beakers.—Of Resistance glass, Philip's form, narrowing at the top.

Capacity, cc.	125	250	500	750
Each	$0.15	.18	.30	.40

2039. Beakers—Jena Glass.—Squat form, with lip.

Capacity, cc.	50	100	150	250	400	600	800	1000	1300
Height, mm.	55	60	75	85	100	115	135	145	160
Diameter, mm.	45	50	55	65	75	85	95	105	110
Each	$0.13	.14	.15	.18	.25	.30	.35	.40	.48

2040. Beakers—Jena Glass.—Tall form, without lip.

Capacity, cc.	50	150	300	500	1000
Height, mm.	67	90	120	140	185
Diameter, mm.	40	50	63	75	90
Each	$0.12	.15	.23	.28	.38

2041. Beakers.—Aluminum, Griffin form, lipped.

Capacity, oz.	4	8	16	32
Each	$0.80	1.00	1.50	2.50

2046. Beakers.—Copper, Griffin form, lipped.

Capacity, oz.	4	8	16	32
Each	$0.75	.90	1.00	1.35

2047. Beakers.—Copper, nickel plated, with lip.

Capacity, oz.	4	8	16
Each	$0.90	1.10	1.25

2051. Beakers.—Porcelain, plain form, glazed throughout.

Capacity, cc.	200	300	600
Each	$0.60	.75	1.15

2052. Beakers.—Porcelain, lipped. Same prices as preceding.

2061. Bell Jars.—Low, wide form, with knob, ground rim.

Height, inches	2¼	3½	4	5	6	8
Diameter, inches	4	5	6	8	9	10
Each	$0.60	.75	.90	1.35	1.50	1.75

2062. Bell Jars.—Tall form, with knob, ground rim.

Height, inches	6	8	9	11	14	12	15
Diameter, inches	3	4	5	6	6½	7	8½
Capacity	1 pt.	1 qt.	½ gal.	1 gal.	1½ gal.	2 gal.	3 gal.
Each	$0.75	.90	1.20	1.80	2.25	2.25	4.00

2063. Bell Jars.—Tall form, swelled, with knob, ground rim.

Height, inches	5	6½	8	10	12
Diameter, inches	3	4	5	6	7
Capacity	1 pt.	1 qt.	½ gal.	1 gal.	2 gal.
Each	$0.90	1.05	1.25	2.00	3.00

2064. Bell Jars.—Wide shape, open top, ground rim.

Height, inches	7	8	10	12
Diameter, inches	4	5	6	7
Capacity	1 qt.	½ gal.	1 gal.	2 gal.
Each	$1.25	1.50	2.25	3.00



2065



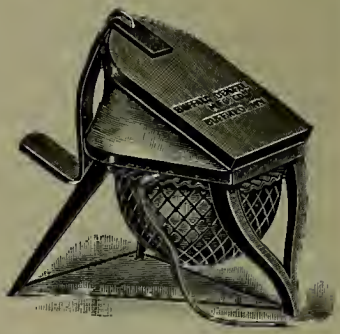
2067



2081



2086



2090

2065 Bell Jars.—Regular shape, open top, with stopper, ground rim.

Height, inches	8	9	11
Diameter, inches	4	5	6
Capacity	1 qt.	½ gal.	1 gal.
Each	$1.25	1.50	2.25

2066. Bell Jars.—Swelled form, open top, with stopper, ground rim.

Height, inches	6½	8	10	12
Diameter, inches	4	5	6	7
Capacity	1 qt.	½ gal.	1 gal.	2 gal.
Each	$1.25	1.50	2.25	2.75

2067. Bell Jars.—Regular form, open top, with glass stopcock, ground rim.

Height, inches	8	9	11
Diameter, inches	4	5	6
Capacity	1 qt.	½ gal.	1 gal.
Each	$3.75	4.00	5.50

2081. Bellows.—Hand.

Diameter	9	10	12
Each	$0.75	.85	1.00

2086. Bellows—Fletchers.—Foot bellows, giving a steady and powerful blast of air, for gas burners or the blowpipe; can be fastened to the floor.

No.	9	9 A	9 B
Diameter, inches	7¼	9	11
Each	$4.50	6.00	8.50

2087. Extra rubber disks, each .50 .75 1.00

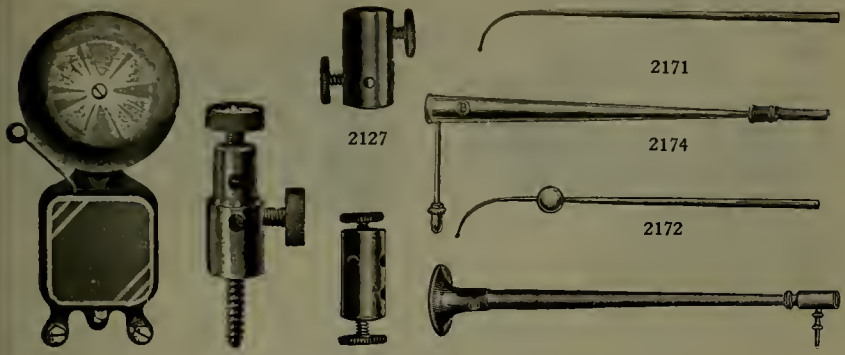
2088. Extra nets .35 .35 .35

2090. Bellows—Fletcher's.—Foot bellows, similar to the above, but mounted on legs.

No.	10	10 A	10 B
Diameter, inches	7¼	9	11
Each	$5.50	7.00	9.50

Extra rubber disks and nets, same prices as above.

2092. **Bellows—Fletcher's.**—Hand bellows, small. Can be folded for the pocket.
Each $3 00



2101. **Bells—Electric.**—Iron box, nickel plated gong.

Size, diameter	3½	4
Each	$0.65	.85

2116. **Binding Posts.**

Size	Small	Medium	Large
Each	$0.10	.12	.15

2126-7. **Binding Screws.**—For batteries.

	Single	Double
Each	$0.10	.15

2136. **Blankets.**—For sluice, all wool, long nap, for catching gold.
Per yard, 30 inches wide $1 75

2146. **Blanks.**—For assayers, of the usual form, for making returns of assays of ore; 8½x5½ inches.
Per 100 $0 50

2156. **Blowers.**—For gold dust, of brass.

Size, inches	4½ x 6	6½ x 9	9 x 12	13 x 11
Each	$0.60	.90	1.00	1.75

2158. **Blowers.**—For gold dust, of sheet iron.

Size	4½ x 6	6 x 8
Each	$0.30	.40

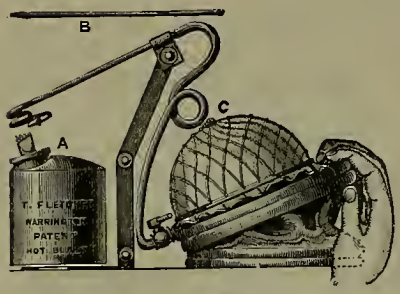
Blowpipes.—For jewelers, etc., of brass.

Length, inches	8	9	10
2171. Plain form, each	$0.15	.20	.25
2172. With bulb, each	.25	.30	.40

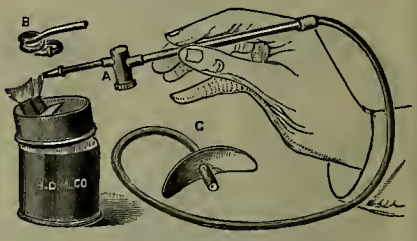
2174. **Blowpipes—Black's Pattern.**—Movable tip, japanned tin. Each $0 50

Blowpipes—Plattner's.—Of brass, with trumpet mouthpiece, moisture chamber. Nickel plated.

2176. With platinum tip. Each $2 25
2177. Without platinum tip. Each 1 25
2181. **Blowpipes—Fletcher's No. 30 A.**—Hot blast, having double the melting power of the old style. For jewelers, etc. Each $0 65
2182. **Blowpipes—Fletcher's No. 30 B.**—With hard rubber mouthpiece. Each $0 75
2183. **Blowpipes—Fletcher's No. 31.**—Similar to preceding, but with moisture chamber $1 25



2186

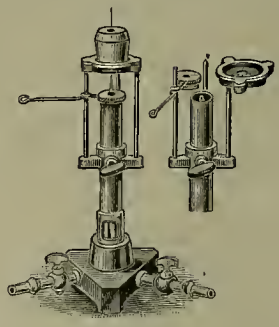


2188

2184. **Blowpipes—Fletcher's No. 31 B.**—With hot and cold blast jets and two mouthpieces. Can be taken apart and folded for the pocket; in a small case. Each $1 75

Blowpipes—Fletcher's No. 32 A.—With folding stand, adjustable at any angle; can be set with mouth or small hand blower. Two jets are supplied, one plain and one with patent coil. The lamp or a weight should be placed on a stand when operating.

2186. As illustrated. Each..... $5 00
2187. Blowpipe alone 1 00
2188. **Blowpipes—Fletcher's No. 42.**—With both cold blast and patent hot blast, 2 jets and nickel-plated mouthpiece. Each $1 50
2189. Mouthpiece only. Each 60
2190. **Blowpipes—Fletcher's Plattner 5 C.**—For capsules or crucibles; to be used in connection with foot blower. Each $4 25



2191

2191. **Blowpipes—Fletcher's Plattner E.**—For capsules and crucibles, with Lewis support, which can be turned aside without detaching it from burner. Used in connection with foot burner. Each $4 75
2193. **Blowpipes—Fletcher's Improved Herapath No. 4.**—For general use; a modification of the well-nown Herapath, differing from it in its great simplicity and power of adjustment in any position. A touch will direct the flame to any desired point. Each $3 75



2202



2201



2196



2221



2197



2205

2194. **Blowpipes—Fletcher's Herapath No. 4 B.**—Similar to preceding, but without joint. Each $3 00

2196. **Blowpipes.**—For heavy soldering, brazing, annealing. Without stopcocks; 3/16 inch tube for jet, and 7/16 inch gas opening; 11 inches long. Each...$1 75

Blowpipes.—For heavy soldering, similar to above, but with stopcock. Used in connection with foot bellows.

	Length, Inches	Air Tube Opening	Gas Supply Opening	Each
2197.	11	3/16	⅜	$2 25
2198.	14	3/16	½	2 50
2199.	16	5/16	⅝	3 50
2200.	18	½	1	4 25

2201. **Blowpipes—Automaton—Fletcher's 6 A.**—Mounted on a stand, used with foot blower, for brazing. Each $4 00

Blowpipes—Fletcher's Automaton.—Hand blowpipes for small work with a foot blower.

2202. No. 6 B. ⅜-inch opening. Each $3 50
2203. No. 6 C. ½ " " " 5 00
2205. No. 6 F. ⅜ " " With bent ends and spring regulator. Each.... 3 00

Borers—Charcoal.—After Plattner, steel shank, wood handle.

2221. 4-cornered, small. Each $0 45
2222. 8 " large. " 75


2231


2241


2243


2251


2224


2261


2262


2265



2271


2263

2224. **Borers—Charcoal.**—Small, with magnetized chisel end. Each..... $0 50

2231. **Borers—Cork.**—For boring corks or rubber stoppers; in sets.

Set of	3	6	8	12	15
Diameter of bore, inches	⅛-¼	⅛-⅜	⅛-½	⅛-¾	⅛-1
Each	$0.75	1.25	1.75	2.25	2.75

2241. **Bottles—Acid or Cobalt.**—Ball, top, for coin tests.

Capacity, ounces	1	2
Each	$0.35	.40

2243. **Bottles—Acid.**—With long stopper, reaching to bottom, for coin or other tests.

Capacity, ounces	½	1	2
Each	$0.30	.35	.40

2244. **Bottles—Acid.**—In wood box, for jewelers. Each $0 65

2251. **Bottles—Balsam.**—With glass cap and loose fitting stoppers; capacity, 1 ounce.
Each $ 30

Bottles—Dropping—Schuster.

Capacity, ounces	½	1	2
2261. Plain, each	$0.20	.25	.30
2262. Stoppered, each	.25	.30	.35

2263. **Bottles—Dropping.**—With stoppers turning half way around to admit air.

Capacity, ounces	½	1	2
Each	$0.20	.25	.30

2265. **Bottles—Dropping.**—Antiseptic, with rubber bulb and pipette stopper.

Capacity, ounces	1	2
Each	$0.30	.35

2271. **Bottles—Mixing.**—Graduated and glass stoppered.

Capacity, cc.	250	500	1000	2000
Each	$1.50	2.00	3.00	4.50



2276 2281 2282 2286 2291 2296

2276. Bottles—Normal Solution.—Of Resistance glass, with ground stoppers, for keeping normal solutions without danger of deterioration.

Capacity, cc.	200	500	1000
Each	$0.35	.45	.60

2281. Bottles—Prescription.—Round shoulder, narrow mouth.

Capacity, ounces	1	2	4	8	12	16	24	32
Per gross	$5.50	6.50	9.00	13.00	19.00	22.00	28.00	35.00

Discount.....%

2282. Bottles—Prescription.—Square, narrow mouth. Same prices as preceding.

2283. Bottles—Prescription.—Round shoulder, wide mouth.

Capacity, ounces	1	2	4	8
Per gross	$6.50	7.50	10.00	14.00
Capacity, ounces	12	16	24	32
Per gross	$20.00	23.00	29.00	36.00

Discount%

2284. Bottles—Prescription.—Round shoulder, extra wide mouth. Pomade.

Capacity, ounces	1	2	4
Per gross	$6.50	8.50	11.00

Discount%

2286. Bottles—Pressure.—Well annealed with patent stopper.

Capacity, cc.	30	60	100	150	200
Each	$0.25	.30	.35	.40	.45

2287. Bottles—Pressure.—Of heavy and well-annealed glass, with metal frame.

Capacity, cc.	120	250
Each	$2.75	3.00

2291. Bottles—Reagent.—Tincture shape, of flint glass, narrow mushroom stopper.

Capacity, ounces	½	1	2	4	8	16	32
Per dozen	$1.75	1.75	2.00	2.50	3.00	3.25	4.00
Capacity, gallons					½	1	2
Per dozen					$7.50	12.00	30.00

2296. Bottles—Reagent.—Salt mouth, of flint glass, wide mouth, mushroom stopper.

Capacity, ounces	1	2	4	8	16	32
Per dozen	$2.00	2.50	2.75	3.25	3.50	4.50
Capacity, gallons				½	1	2
Per dozen				$8.50	15.00	36.00



2301

2301. Bottles—Reagent.—With raised symbols. A very convenient form, the chemical symbols being blown in the glass and the letters afterwards ground to make them visible. They can be sold in sets or separately.
Capacity, 4 ounces = 125 cc. Height, 5¼ inches. Per dozen **$1 75**
They are marked as follows, and can be ordered by number:

No.		No.	
1.	Hydrogen Sulphide (Amber) ... H_2S	20.	Barium Chloride $BaCl_2$
2.	Hydrochloric Acid HCl	21.	Calcium Chloride $CaCl_2$
3.	Acetic Acid $HC_2H_3O_2$	22.	Calcium Sulphate $CaSO_4$
4.	Sulphuric Acid H_2SO_4	23.	Calcium Hydroxide $Ca(OH)_2$
5.	Nitric Acid HNO_2	24.	Magnesium Sulphate $MgSO_4$
6.	Potassium Ferrocyanide $K_4Fe(CN)_6$	25.	Mercuric Chloride $HgCl_2$
7.	Potassium Sulphocyanide KCNS	26.	Silver Nitrate (Amber) $AgNO_3$
8.	Potassium Carbonate K_2CO_3	27.	Lead Acetate $Pb(C_2H_3O_2)_2$
9.	Potassium Sulphate K_2SO_4	28.	Ferrous Sulphate $FeSO_4$
10.	Potassium Iodide KI	29.	Ferric Chloride Fe_2Cl_6
11.	Potassium Ferricyanide $K_3Fe(CN)_6$	30.	Alcohol C_2H_5OH
12.	Potassium Hydroxide KOH	31.	Ammonium Sulphocyanide NH_4CNS
13.	Potassium Dichromate $K_2Cr_2O_7$	32.	Barium Hydroxide $Ba(OH)_2$
14.	Sodium Dichromate $Na_2Cr_2O_7$	33.	Barium Carbonate $BaCO_3$
15.	Ammonium Hydroxide NH_4OH	35.	Ether $(C_2H_5)_2O$
16.	Ammonium Sulphide (Amber).. $(NH_4)_2S$	36.	Cupric Sulphate $CuSO_4$
17.	Ammonium Chloride HN_4Cl	38, 39, 40.	Blank
18.	Ammonium Carbonate $(NH_4)_2CO_3$	59.	Sodium Carbonate Na_2CO_3
19.	Ammonium Oxalate $(NH_4)_2C_2O_4$	61.	Sodium Hydoxide NaOH

(The above 40 bottles constitute the regular reagent set and are sold, packed ready for shipment, for **$15.00.**)

No.
37. Platinic Chloride $PtCl_4$
58. Fehling's Solution.
60. Sodium Acetate $NaC_2H_3O_2$
77. Ammonia NH_3
81. Stannous Chloride $SnCl_2$
82. Amonium Molybdate $(NH_4)_2MoO_4$
83. Carbon Disulphide CS_2
86. Mercurous Nitrate $Hg_2(NO_3)_2$
87. Indigo Solution.
88. Nessler's Solution.
90. Magnesia Mixture.
93. Oxalic Acid.
94. Picric Acid $C_6H_2OH(NO_2)$
96. Potassium Chromate K_2CrO_4
97. Ammonium Sulphydrate NH_4HS

No.
100. Mercuric Potassium Iodide.
401. Barium Nitrate $Ba(NO_3)_2$
404. Silver Sulphate $AgSO_4$
406. Bromine Water.
407. Chloroform $CHCl_3$
408. Cochineal.
409. Coralline.
410. Litmus.
411. Methyl Orange.
412. Phenolphthalein.
413. Turmeric.
414. Iodine Solution $I+KI$
415. Methyl Alcohol CH_3OH
416. Sodium Cobaltic Nitrate.
417. Sodium Hyposulphite $Na_2S_2O_3$

2302. Bottles—Reagent.—With raised symbols, like preceding. Capacity, 8 ounces = 250 cc. Height, 6½ inches. Per dozen **$2 25**

No.
101. Sulphuric Acid, Con. H_2SO_4
102. Sulphuric Acid, Dil. H_2SO_4
103. Nitric Acid, Con. HNO_3
104. Nitric Acid, Dil. HNO_3
105. Hydrochloric Acid, Con. HCl
106. Hydrochloric Acid, Dil. HCl
107. Hydrogen Sulphide (Amber).. H_2S
108. Ammonium Hydroxide NH_4OH
109. Ammonium Chloride NH_4Cl
110. Ammonium Carhonate $(NH_4)_2CO_3$
111. Sodium Hydroxide $NaOH$

No.
112. Sodium Carhonate Na_2CO_3
114. Boricum Chloride $BaCl_2$
116. Blank.
122. Ammonium Sulphide (Amber). $(NH_4)_2S$
129. Sodium Phosphate Na_2HPO_4
130. Ammonium Oxalate $(NH_4)_2C_2O_4$
131. Acetic Acid $HC_2H_3O_2$
145. Silver Nitrate (Amber) $AgNO_3$
150. Potassium Hydroxide KOH
151. Calcium Hydroxide $Ca(OH)_2$
152. Lead Acetate $Pb(C_2H_3O_2)_2$

2303. Bottles—Reagent.—With raised symbols like preceding. Capacity, 16 ounces = 500 cc. Height, 7¾ inches. Per dozen **$3 25**

No.
204. Ammonium Hydroxide NH_4OH
211. Blank.
215. Sulphuric Acid H_2SO_4
215A. Sulphuric Acid, Dil. H_2SO_4

No.
216. Nitric Acid HNO_3
216A. Nitric Acid, Dil. HNO_3
217. Hydrochloric Acid HCl
217.A Hydrochloric Acid, Dil. HCl

2304. Bottles—Reagent.—With raised symbols, like preceding. Capacity, 32 ounces = 1000 cc. Height, 9½ inches. Per dozen **$4 00**

No.
501. Sulphuric Acid, Con. H_2SO_4
502. Sulphuric Acid, Dil. H_2SO_4
503. Nitric Acid, Con. HNO_3

No.
504. Nitric Acid, Dil. HNO_3
505. Hydrochloric Acid, Con. HCl
506. Hydrochloric Acid, Dil. HCl
511. Blank.

2305. Bottles—Reagent.—With raised symbols, like preceding. Capacity, 1 ounce = 30 cc. Height, 3⅝ inches. Per dozen..... **$1 25**

No.
325. Silver Nitrate (Amber) $AgNo_3$
326. Cohaltous Nitrate $Co(No_3)_2$
327. Platinic Chloride $PtCl_4$

No.
336. Gold Chloride $AuCl_3$
341. Blank.

2306. Bottles—Reagent.—Wide mouth, with raised symbols. Capacity, 4 ounces = 125 cc. Height, 4⅞ inches. Per dozen **$2 00**

No.
301. Sodium Carbonate Na_2CO_3
302. Potassium Nitrate KNO_3
303. Potassium Cyanide KCN
304. Borax $Na_2B_4O_7$

No.
305. Ferrous Sulphate $FeSO_4$
307. Blank.
312. Test Paper.
313. Sod. Ammon. Phosphate


2316


2318


2326


2328



2331


2332

2309. **Bottles—Reagent.**—Wide mouth, with raised symbols. Capacity, 1 ounce = 30 cc. Height, 3⅛ inches. Per dozen $1 35

No.		No.	
350.	Sodium Carbonate Na_2CO_3	367.	Potassium Chlorate $KClO_3$
351.	Borax $Na_2B_4O_7$	368.	Potassium Ferricyanide $K_3Fe(CN)_6$
353.	Sodium Acetate $Na_2C_2H_3O_2$	369.	Sodium Bitartrate $NaHC_4H_4O_6$
354.	Potassium Nitrate KNO_3	370.	Sodium Nitrate $NaNO_3$
358.	Potassium Cyanide KCN	371.	Starch.
361.	Am. Sod. Phosphate $Na(NH_4)HPO_4$	372.	Test Paper.
364.	Copper Cu	373.	Zinc.
365.	Ferrous Sulphate $FeSO_4$	374.	Ammonium Phosphate $(NH_4)_2HPO_4$
366.	Ferrous Sulphide FeS	375.	Blank.

2316. **Bottles—Sample.**—Inverted form, for display of grain, salts, chemicals, etc. Very convenient.

Capacity	½ pt.	1 pt.	1 qt.	½ gal.	1 gal.
Per dozen	$1.80	2.00	3.00	6.00	18.00

2318. **Bottles—Sample.**—Cylinder shape, for wine, oil, vinegar, etc.

Capacity, ounces	2	4	6	8
Per dozen	$0.50	.75	.90	1.00

2320. **Bottles—Sample.**—For oils; flat, without foot.

Length, inches		6	7	8
Per dozen		$1.00	1.25	1.50

Bottles—Specific Gravity—Picnometers.—With perforated stoppers, accurately graduated.

2326.	Capacity, grammes	10	25	50	100
2327.	Capacity, grains	100	250	500	1000
	Each	$0.80	1.00	1.25	1.50

Bottles—Specific Gravity—Picnometers.—With perforated stopper and counterpoise weight. Accurately graduated.

2328.	Capacity, grammes	10	25	50	100
2329.	Capacity, grains	100	250	500	1000
	Each	$1.25	1.50	2.00	2.50

2331. **Bottles—Specific Gravity.**—Of light blown glass, with thermometer ground into neck.

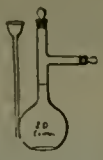
Capacity, grammes	10	25	50	100
Each	$2.00	2.25	2.50	3.00

2332. **Bottles—Specific Gravity—Geissler's.**—With a long, fine thermometer ground into neck and a capillary tube for overflow ground into side.

Capacity, grammes	10	25	50	100
Each	$2.75	3.00	3.50	4.00


2333


2334


2335


2336


2337


2356


2358-9

2333. **Bottles—Specific Gravity.**—With wide mouth for solids; with ground stopper, with mark according to Regnault.

Capacity, cc.	25	50	100
Each	$0.50	.60	.75

2334. **Bottles—Specific Gravity.**—Narrow mouth for liquids, ground stopper, with mark; Regnault's form.

Capacity, cc.	25	50	100
Each	$0.50	.60	.75

2335. **Bottles—Specific Gravity.**—Bruhl's for viscous liquids; 20 cc., with funnel tube. Each $1 50

2336. **Bottles—Specific Gravity.**—Chancel's for gases. Each 3 00

2337. **Bottles—Specific Gravity.**—Chancel's other form. Each 1 50

2338. **Bottles—Specific Gravity.**—Sprengel's, tube form, with thermometer and side tubes. Each 3 50

2346. **Bottles—Sterilizing.**—For use in Arnold's Sterilizer.
Capacity, 6 ounces. Per dozen $1 25

2356. **Bottles—Weighing.**—With ground hollow stopper and wide mouth.

Height, mm.	50	50	50	60	75	85	85
Diameter, mm.	25	30	40	45	40	45	50
Each	$0.30	.35	.40	.45	.45	.55	.75

2357. **Bottles—Weighing.**—Cone shape, of light glass, hollow stopper.

Capacity, ounces	½	1	2	4
Each	$0.30	.40	.50	.60

2358-9. **Bottles—Weighing.**—Cylinder shape, with flat (2358) or round (2359) bottom.

Length, mm.	80	80	90	105	120
Diameter, mm.	12	16	20	25	30
Each	$0.30	.30	.35	.40	.50

(See, also, Jars—Vials.)

Brazing Outfits

We beg to call your attention to our Brazing Outfits, which we believe to be of great advantage for small shops which are engaged in repair work where a good heat is required.



2361



2362

2361. **Brazing Outfit No. 1.**—Is fitted with our powerful Challenge Burner, tripod for holding same and 7½-gallon pressed tank, gauge and pump, which is connected to burner with six feet of flexible copper hose. The burner is hung on a swivel joint, and by taking the burner out of the tripod, it can be used in any position, making it thus invaluable for any kind of brazing work where the joints are hard to get at.
Price complete, net $35 00

2362. **Brazing Outfit No. 2.**—Is fitted with two Advance Burners instead of one Challenge Burner. Firing onto a fire-brick table; adjustable in tripod to working height. Is especially adapted for light work.
Price complete, net $35 00

2363. **Brazing Outfit No. 3—Combination.**—Composed of the two outfits as described above, but with only one tank and one tripod. For both light and heavy work.
Price complete, net $50 00

2371. **Brooms.**—For mill use, very strong. Per dozen $5 00

2373. **Brooms.**—For sluices, extra strong. Per dozen 2 50

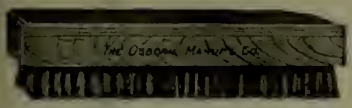
2386. **Brushes.**—Acid, of spun glass 25



2391



2393



2392



2394

2391. **Brushes—Amalgam.**—For cleaning plates, of heavy bristles, long handle, curved back.

Rows of bristles	3	4	5
Each	$0.45	.50	.60

2392. **Brushes—Amalgam.**—Without handle, straight back, of bristles.

Rows of bristles	4	5	6
Each	$0.45	.50	.60

2393. **Brushes—Bottle.**—Leiner pattern, with tinned metal handle, tufted end, strong white bristles, length 12 inches. Each $0 10

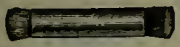
2394. **Brushes—Bottle.**—Strong twisted wire handle, circular rows of bristles, 2 inches diameter, length 13 inches. Each $0 20



2396



2405



2398



2401

2396. **Brushes—Button.**—For cleaning cupel buttons; of genuine bristles.

Rows of bristles	3	4	5
Each	$0.25	.35	.45

2398. **Brushes—Button.**—Lingke's form, a brass tube with bristles at each end.

Diameter, inches	½	⅝	¾
Each	$0.40	.50	.60

2401. **Brushes—Camel's Hair.**—Flat, for cleaning fine balances, etc.

Width, inches	1	1½	2	2½	3	4
Each	$0.25	.30	.35	.35	.40	.45

2402. **Brushes—Camel's Hair.**—Flat brush, round wood handle.

Width, inches	⅜	½	⅝	¾	1
Each	$0.10	.15	.15	.15	.20

2405. **Brushes—Camel's Hair Pencils.**—Quill holders. Per dozen $0 35



2421



2428



2412



2415



2416



2427

2411. **Brushes—Counter Dusters.**—For cleaning buckboards, etc. Each 60

2412. **Brushes—Painters'.**—For cleaning mortars, buckboards and grinders. Each 50

2415. **Brushes—Painters'.**—Flat, with gray bristles set in hard rubber socket.

Width, inches	3	4	5
Each	$1.00	1.50	2.00

2416. **Brushes—Painters'.**—Flat, with long black bristles, with tin band.

Width, inches	2½	3	4	5
Each	$0.50	.60	.90	1.25

2421. **Brushes—Scratch.**—Of brass or steel wire, for scouring bullion.

Size	Small	Large
Each	$0.50	.75

2426. **Brushes—Steel Wire.**—With 8 rows of 1½-inch wires.

Size of block	3 x 6	3 x 9
Each	$1.50	2.00

2427. **Brushes—Steel Wire.**—For battery screens, with bent handle; brushes 6 inches long, 3 rows of fine round wire 1⅛ inches long.
Each $0 60

2428. **Brushes—Steel Wire.**—For battery screens, without handle; 9 rows of 1⅛-inch long fine round wires; curved back; 3 x ⅞ inches.
Each $1 00



2429 2431 2436 2437 2440 2441

2429. Brushes—Steel Wire.—For castings; of flat wires, set in hardwood block.

No. of rows	4	4	5	5
Length of wires, inches	1½	3	1½	3
Each	$0.30	.35	.45	.50

2430. Brushes—Steel Wire.—On 2½ x 7½-inch block; 5 rows of fine steel wires 1¾ inches long.
Each $0 75

2431. Brushes—Steel Wire.—For casting, etc., round form.
Coarse flat wire, 5 inches long, for castings. Each $0 50

2432. Soft round wire, for screens. Each 60

2436. Brushes—Test Tube.—Made of bristles held by a twisted wire, tuft at tip.

Size	Small	Large
Per dozen	$0.75	.85

2437. Brushes—Test Tube.—Like preceding, but with sponge tip.

Size	Small	Large
Per dozen	$0.75	.85

2440. Brushes—Tumbler.—With round wood handle, with stiff bristles, for tumblers, beakers, etc.

Diameter, inches	2½	3
Each	$0.25	.35

2441. Brushes—Tube.—For cleaning bottles, tubes, etc.; of heavy bristles, with twisted wire handle, 16 inches long. Each $0 30

2442. Brushes—Tube.—For long open tubes; fine twisted wire handle, with tuft of bristles in the center, 18 inches long. Per dozen $0 25

2456. Buckets.—For mill use, for carrying tailings; of russia iron, with strong riveted bottom, with bail, strainer, guard and spout.

Capacity, quarts	5	10
Each	$3.00	4.00

2457. Buckets.—For mill use, like preceding, but without spout or strainer.

Capacity, quarts	5	10
Each	$2.00	3.00

2466. Buckskins.—For assayers, of best quality. Each $1 50



2471. **Bulbs—Rubber.**—For blowing air; without valves; about 50 cc. capacity....$0 25

2472. **Bulbs—Rubber.**—With valve and tube, for wash bottles, etc.

Size	Small	Large
Each	$0.35	.50

2473. **Bulbs—Rubber.**—Double, with valve and tube, for continuous blast. Each.. $1 00

2486. **Burettes—Gay-Lussac.**—On polished stand.

Capacity, cc.	25 x 1/10	50 x 1/10	100 x 1/5
Each	$1.25	1.75	2.00

2487. **Burettes—Bink's.**—On polished stand.

Capacity, cc.	25 x 1/10	50 x 1/10	100 x 1/5
Each	$1.50	1.75	2.00

2488. **Burettes—Mohr's.**—With pinch cock, dropping tube and tip.

Capacity, cc.	10	25	25	50	50	100	100
Graduation	1/10	1/5	1/10	1/5	1/10	1/5	1/10
Each	$0.65	.80	.90	1.15	1.30	1.75	2.00

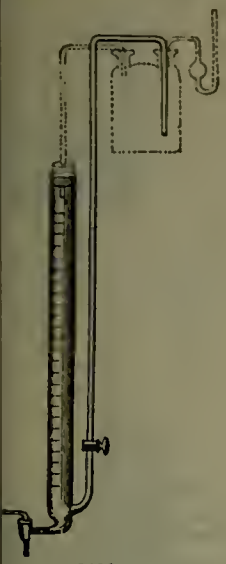
2489. **Burettes—Geissler's.**—With glass stopcock.

Capacity, cc.	10	25	25	50	50	100	100
Graduation	1/10	1/5	1/10	1/5	1/10	1/5	1/10
Each	$1.10	1.25	1.50	1.75	2.00	2.40	2.75

2490. **Burettes—Geissler's.**—With stopcock on elbow for permanganate solutions. Same prices as preceding.

2491. **Burettes—Geissler's.**—With three-way stopcock and tube for filling from reservoir.

Capacity, cc.	25 x 1/10	50 x 1/10	100 x 1/10
Each	$2.25	3.00	4.00


2493



2496


2497


2499

2492. **Burettes—Geissler's.**—Similar to preceding, but with zero point and overflow reservoir.

Capacity, cc.	25 x 1/10	50 x 1/10	100 x 1/10
Each	$3.00	3.50	4.50

2493. **Burettes—Gawalowsky's.**—With glass stopcock and glass side tube, with stopcock for filling from reservoir.

Capacity, cc.	25 x 1/10	50 x 1/10	100 x 1/10
Each	$3.00	3.50	4.25

2496. **Burettes—Schellbach.**—A white background and dark enameled stripe through the same, giving a definite meniscus for exact reading. For pinchcock connection, with rubber tube and tip.

Capacity, cc.	25	50	50	100	100
Graduation	1/10	1/5	1/10	1/5	1/10
Each	$1.25	1.50	1.75	2.25	2.75

2497. **Burettes—Schellbach.**—Like preceding, but with Geissler stopcock.

Capacity, cc.	25	50	50	100	100
Graduation	1/10	1/5	1/10	1/5	1/10
Each	$2.00	2.25	2.75	3.00	3.50

2499. **Burettes—Schellbach.**—With three-way stopcock and side filling tube.

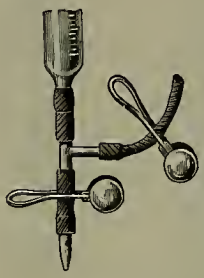
Capacity, cc.	25 x 1/10	50 x 1/10	100 x 1/10
Each	$2.25	3.00	4.00

Burettes—Normal, certified.—With control stamp of test by the German Government Commission, or with control stamp of the National Bureau of Standards, Washington, D. C. They can be had in three forms, similar to our Nos. 2488, 2489 and 2491, described above.

Capacity, cc.	10	25	50	100
Graduations	1/20	1/10	1/10	1/5
2500. Mohr's for pinchcock. Each	$4.50	5.25	5.75	6.75
2501. Geissler, with stopcock. Each	6.25	6.75	7.25	8.50
2502. With patent three-way stopcock. Each	6.75	7.50	7.75	9.00



2508



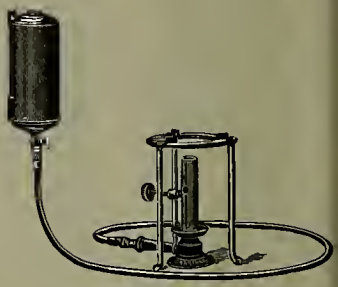
2516



2521



2522



2536

2507. Burettes—Automatic.—With overflow and zero point, three-way stopcock and side tube for filling from reservoir.

Capacity, cc.	25 x 1/10	50 x 1/10	100 x 1/5	100 x 1/10
Each	$3.00	3.50	4.00	4.50

2508. Burettes—Automatic.—Squibb's form, filled by pressure, the overflow syphoning back into the reservoir, thus avoiding the trouble of reading the zero point.

Capacity, cc.	25 x 1/10	50 x 1/10
Each	$4.50	5.00

2511. Burette Titration Apparatus.—With ground joints, automatic zero point. Composed of burette, bottle, rubber bulb, connecting tube and clamp.

Capacity of burette, cc.	25 x 1/10	50 x 1/10
Complete, each	$5.00	6.00

2516. Burette Attachment.—For connecting burette with reservoir. Each.....$0 50

2521. Burette Floats—Erdman's.—Each 25

2522. Burette Floats—Volhard's.—With points to prevent sticking to the burette walls. Each$0 50

2524. Burette Floats—Beutell's.—For dark liquids. Each.....$0 40

2531. Burette Tips.—Per dozen 30

2536. Burners—Alcohol.—Barthel's, requiring no wick; very powerful. Reservoir of 1 litre capacity; with 4½ feet of flexible metal tubing.

Size	Small	Large
Each	$7.50	9.00

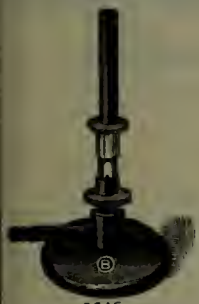

2537


2541


2542


2543

2537. **Burners—Alcohol.**—Barthel's plain form. Each $4 50
2541. **Burners—Bunsen.**—Low form, small size. Each 50
2542. **Burners—Bunsen.**—Low shape, with air regulators. Each 50
2543. **Burners—Bunsen.**—Ordinary form, with air regulator. Each 40


2546


2552


2544


2547

2544. **Burners—Bunsen.**—Like preceding, but with large tube. Each $0 50
2546. **Burners—Bunsen.**—Improved, with flame check and gas regulator. Each... 1 00

Burners—Bunsen.—Compound, with air regulator.

2547. With 2 tubes. Each 1 00
2548. With 3 tubes. Each 1 50
2549. With 4 tubes. Each 2 00
2550. With 6 tubes. Each 3 00
2552. **Burners—Bunsen.**—With locomotive top.

Size	Small	Large
Each	$0.80	1.00

2554. **Burners—Bunsen.**—For gasoline flame. Each $0 75


2555

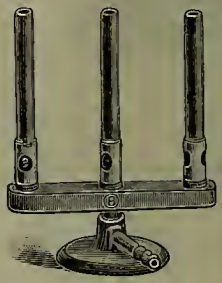
2555. **Burners—Bunsen—Johnson's No. 2 Adjustable.**—A powerful blow-torch; indispensable for shop or laboratory and adaptable to many uses. Does not need a blower. Height 9½ inches, base 6 inches, weight 5 lbs. Each.....$5 00



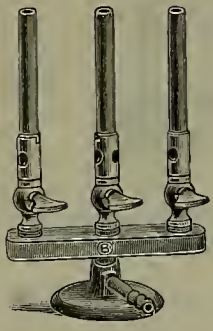
2556



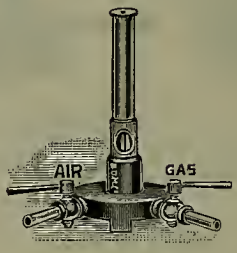
2560



2561



2562



2565

2556. **Burners—Bunsen—Johnson's No. 3 Handy.**—Gives 2000° F. heat with 5 feet of gas per hour; gives every work bench the same service as a costly blower. Base 5 inches, height 7 inches. Each$4 00

Burners—Bunsen—Wynne.—New form, adjustable on horizontal axis; very powerful, can be used instead of a blast lamp.

2557. Plain form. Each$1 25

2558 With adjustable extension arm. Each 2 00

2560. **Burners—Bunsen Blast.**—With universal motion. Each$4 00

Burners—Bunsen.—On stand, with several tubes in one row.

2561. 3 burners, plain. Each$1 75

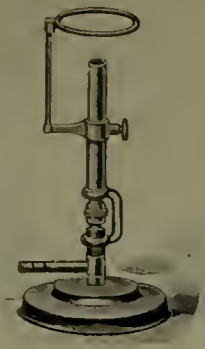
2562. 3 burners, with stopcocks. Each 3 50

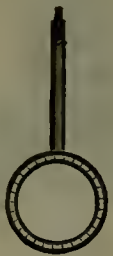
2563. 4 burners, plain. Each 2 25

2564. 4 burners, with stopcocks. Each 4 50

2565. **Burners—Fletcher's No. 5.**—Blast Bunsen. A Bunsen burner combined with a powerful blowpipe, by which a light or a powerful flame can be turned on as needed, giving very high temperatures. Each 3 50


2566


2568


2575


2576

Burners—Fletcher's Adjustable Bunsen.—For burning different gases. In this burner the size of the orifice through which the gas escapes is adjusted by turning the milled cap nut seen inside the arm which supports the upright tube. The air supply is adjusted by screwing up and down, it being threaded and moving upon the stem which passes through its lower end. Any kind of a flame can thus be obtained.

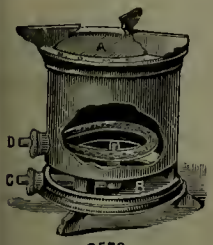
2566. 5 G, on iron base. Each $1 00
2567. 5 H, on polished brass base. Each 2 00
2568. 5 K, on iron base, with supports for dishes. Each 1 75
2571. **Burners—Soapstone.**—For gases; used in poison analysis. Each $2 00
2573. **Burners—Chaddock's.**—Of porcelain, incorrodible; for use in hoods where metals soon corrode. Complete, with support for dishes, chimney and asbestos pads $2 00
2574. **Burners—Erlenmeyer's.**—Giving a very hot flame 3 00
2575. **Burners—Ring Form.**—With air regulator; can be attached to any kind of support.

Diam. of ring, inches	3	4	5	6
Each	$1.25	1.50	1.75	2.00

2576. **Burners—Fletcher's 54 A.**—Star burner, for heating water urns, small dishes, etc.
Small size $0 70
Large size 90

Burners—Fletcher's 7 and 7 A.—For low temperatures, giving a steady current of heated air through the gauze.

2578. Form 7, plain. Each $1 75
2579. Form 7 A, with blast pipe C. Each 2 00

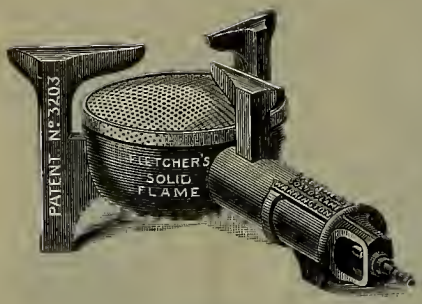


2579

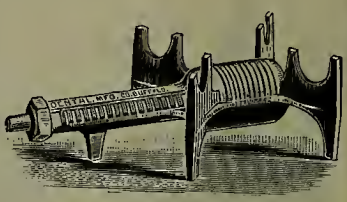


2580

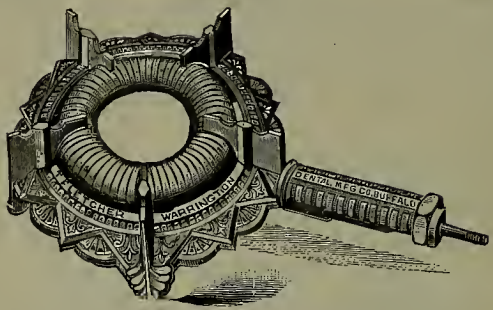
2580. **Burners—Fletcher's No. 46.**—Solid flame, perfectly free from smell and uniform in temperature. Simple and strong. Each $2 00



2581



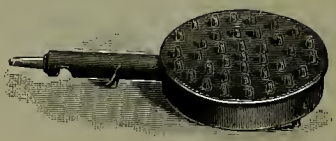
2585



2583



2586



2587

Burners—Fletcher's.—Solid flame, for quick heating of pans.

2581. No. 47, large size. Each $2 00

2582. 47 A, small size. Each 1 00

Burners—Fletcher's Radial.—Giving a solid circular flame.

2583. No. 1 R, 3¾ inches diameter. Each $1 50

2584. No. 2 R, 5 inches diameter. Each 2 00

2585. **Burners—Fletcher's 3 R.**—Solid flame. Each 1 00

2586. **Burners—Fletcher's No. 130.**—For general laboratory work; 1½ inches high, giving a smokeless flame. Of solid copper, with lap joints.

Diameter, inches	4	5	6½	7¾	9¼
Each	$1.50	1.75	2.25	3.00	3.50

2587. **Burners—Fletcher's No. 131.**—Of cast iron, similar to preceding.

Diameter, inches	4	5	6½
Each	$1.00	1.25	2.00



2591



2592



2593



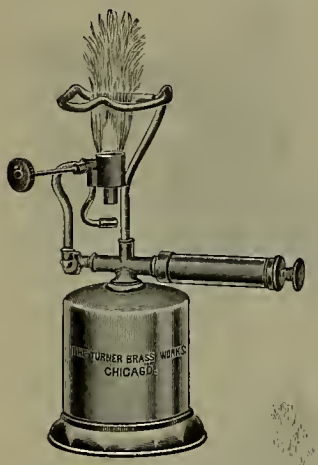
2594

2591. Burners—Turner's No. 11 Franklin Torch.—Constructed of the best quality brass, strong and durable. Especially adapted to the use of jewelers, electricians, and painters. It has a soldering-iron attachment. Capacity, one pint, consuming ½ pint per hour. Each $3 50

2592. Burners—Turner's No. 12 Old Reliable Torch.—Similar to the preceding, but larger and stronger, and can be applied to all sorts of plumbing, electrical and soldering work. Capacity, one quart; consumption, ½ pint per hour. Each..$4 00

2593. Burners—Turner's No. 92 Double Jet Torch.—This torch is very powerful and gives off an intense heat. It is made of heavy brass; the pump is contained in the handle, and the air valve is located at the base of the pump barrel, while the filler plug is in the top of the tank. Capacity, one quart; consumption, ½ pint per hour. Each$6 75

2594. Burners—Turner's No. 64 Jewel Torch.—A very small type of gasoline burner, generating its own gas and practically automatic in operation. It has a capacity of one-half pine and consumes ¼ pint of gasoline per hour. The air pressure is obtained by means of a small force-pump contained in the handle. It is particularly adapted to the needs of dentists and all who require quick and perfect heating of metals, liquids, etc. Each$3 00



2595



2596

2595. **Burners—Turner's No. 65 Laboratory Torch.**—A small laboratory tool which generates a clear blue flame that can be swivelled off to any direction. Acts as a Bunsen burner with adjustable flame. The air pressure is obtained by means of a force-pump in the handle. Made of strong brass, nickel plated. Capacity, one pint; consumption, ¼ pint per hour. Each $5 50

2596. **Burners—White No. 58 Gem Torch.**—For alcohol. Made of brass, nickel plated; light and convenient; can be carried in the pocket. Capacity, 4 ounces; weight, ¾ pound. Each $2 00



2597



2598

2597. **Burners—Turner's No. 100 Double Jet Torch.**—For alcohol. This torch burns wood alcohol and produces a needle-pointed flame of high temperature, excellent for all kinds of fine soldering; the flame can be swivelled off in any direction or position. Made of brass, nickel plated. Capacity, one pint. Each..... $7 00

2598. **Burners—Gasoline.**—Barthel's, wickless, plain form $5 00



2605



2605



2611



2612



2613



2601



2607

2601. **Burners—Hydrocarbon—"Advance."**—The acme of efficiency and simplicity; one solid copper casting; no parts to work loose or twist out of alignment. It was designed to give to assayers a strong and efficient hydrocarbon burner of simple construction and low cost. It can operate the Advance Combination Furnace, which holds ten 20-gramme crucibles in the fire chamber and eighteen cupels in the muffle. Each $5 00

2605. **Burners—Hydrocarbon—"Challenge."**—A radical departure in burner construction. The most efficient burner ever designed. It is practically indestructible, the main part of the burner consisting of one single casting. The combustion tube is surrounded by a gravel chamber, which affords means for the gradual generation of the gasoline into gas and offers the maximum surface upon which the tarry matter in the gasoline will be deposited as the liquid becomes converted into gas. This saves the deposition of the tar in the ducts and needle valve outlets. The annular duct around the face of the burner is supplied by an opening leading over into it from the gravel chamber, and in this annular chamber the fluid is generated to high tension before reaching the duct at its under side, whence it is led back to the needle valve outlets. Diameter of combustion tube, 1¾ inches; diameter of face, 4 inches; total length, 14 inches; weight, 12 lbs. Each $12 50

2607. **Burners—Advance Distillate.**—Solid, simple and compact; nothing to get out of order. Cannot be readily clogged, and, when clogged, can be cleaned in an instant. Is readily adjusted to secure any mixture of oil and air or steam. Can be worked with the smallest assay furnace or a furnace holding a black lead crucible No. 150. It requires an air compressor for efficient work. Each.... $7 50
(See catalogue of the Calkins' Specialties for full description.)

Burner Attachments.

2611. Chimneys, of Russia iron. Each $0 20

2612. Crowns, or locomotive tops, for round flames. Each 45

2613. Crow nests, to slip over burners for solid flame. Each 30

2614. Plates, of porcelain, to put over top, for blowpipe work. Each..... 65



2615



2616



2617



2618

2615. Tips with rest for blowpipe. Each $0 20
2616. Tips with rest, long form. Each 20
2617. Tripods, for supporting dishes. Each 25
2618. Wing tops, for bending glass. Each 25

Calipers.—For measuring diameter of tubing.

2626. Inside calipers. Each $0 50
2627. Outside calipers. Each 50
2628. Combination calipers. Each 75

(See also Gauges, No. 3936.)



2632

CALORIMETERS.

The instrument shown under Nos. 2631 and 2632 is a Standard Calorimeter devised by Professor S. W. Parr of the University of Illinois.

The marked features of the method are accuracy, simplicity, ease and rapidity of manipulation. The results are absolute and not relative. The operations are such as can be carried on by one not especially skilled in laboratory processes. Oxygen under high pressure is not used. The time consumed in conducting a test on a weighed and dried sample should not exceed fifteen or twenty minutes. Use is made of Sodium Peroxide as the combustion medium. The CO_2 and H_2O formed in the reaction are at once absorbed by the chemical, giving a solid residue instead of gaseous products. It will at once be seen that the apparatus required is simple in construction and easy of manipulation.



2631

2631. For Wire Ignition, complete $70 00

2632. For Electric Ignition, complete 75 00



2636



2636

2636. **Candlesticks—Lindahl's Improved Pattern.**—Can be taken apart, being composed of five detachable pieces; the handle is a hollow tube, with screw-top, in which a number of matches can be carried and always kept dry. It is made of the best tool steel and is a very handy article. Each..... $1 00

2637. **Candlesticks—Miners'.**—Of steel, in one piece, to hang or to stick in the wall. Each $0 50

2638. **Candlesticks—Miners'.**—Of steel; folding. Each $0 75

2646. **Cautchouc.**—In sheets; bandage gum; to make cork stoppers absolutely air-tight. Per ounce $0 30

Carbons.—(See Batteries.)

2656. **Carboys.**—Boxed. Capacity, 10 gallons. Each $2 50

2661. **Carboy Stands.**—For tilting carboys, thus rendering easy an otherwise difficult and dangerous operation; acids and other corrosive solutions can be poured out with perfect safety. They can be folded up in a compact manner for storage or transportation. Each $4 50

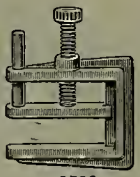

2671


2673


2716


2718


2719


2720


2722

2671. **Casseroles—Porcelain—Royal Berlin.**—With porcelain handle.

Diameter, inches	2	2¾	3⅛	3¾	4¼
Capacity, ounces	2	3	4½	6½	10
Each	$0.35	.40	.55	.70	.80
Diameter, inches	4¾	5¼	6	6¾	7½
Capacity, ounces	13	20	27	33	42
Each	$0.90	1.10	1.30	1.50	1.75

2673. **Casseroles—Porcelain—Royal Berlin.**—With wooden handle and cover.

Diameter, inches	2⅞	3¼	4	4½	5⅛	5⅝	6	6½
Capacity, ounces	3	5	7	10	16	22	27	33
Each	$0.45	.50	.60	.75	.90	1.10	1.25	1.60

2681. **Chamois Skins.**—Of best quality, for straining quicksilver. Each.....$1 50

2682. **Chamois Skins.**—Of good quality. Each 75

2691. **Charcoal.**—In slabs of best willow, 1 inch thick.

Size of block	4x¾	3¼x2½	4¾x3
Per dozen	$0.50	1.80	3.60

2701. **Chisels**—Cold, for chipping bullion.

Length, inches	6	6½	7	8
Cutting edge, inches	⅜	½	⅝	¾
Each	$0.25	.30	.40	.50

2711. **Clamps.**—Brass, for holding watch glasses. Each$0 25

2716. **Clamps.**—Mohr's Pinchcock, for burettes. Nickel plated.

Size	Small	Medium	Large
Each	$0.15	.20	.25

2718. **Clamps—Hoffman's.**—With screw arrangement; nickel plated.

Opening, inches	½	¾
Each	$0.20	.25

2719. **Clamps—Hoffman's Improved.**—Can be inserted anywhere without disturbing the tubing.

Opening, inches	¾	1
Each	$0.25	.30

2720. **Clamps—Hoffman's.**—Latest form, for tubing up to 1 inch.

Opening, inches	¾	1⅛
Each	$0.25	.30

2722. **Clamps—Bunsen's.**—Two bars, with screw at both ends to hold heavy tubing up to 1½-inch. Each$0 40



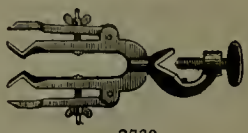
2724



2728



2729



2730



2731



2733



2734

2724. **Clamps—Bunsen's.**—Takes tubing up to 2 inches; can be screwed to a table. Each $0 75

2727. **Clamps—D Shape.**—Of cast iron, for fastening apparatus to table.

Opening, inches	2½	3	4	5	6
Each	$0.30	.40	.50	.60	.80

2728. **Clamps—Burette.**—Of iron; double for holding 2 burettes; closing automatically. Each $0.90

2729. **Clamps—Burette.**—Of iron; double, with rubber rings on arms; closing automatically. Each $3 00

2730. **Clamps—Iron.**—Lunge's form, double, for holding gas volumeters and other parallel tubes. Each $1 50

2731. **Clamps—Iron.**—For burettes, cork-lined, with set screw; to attach to a stand. Each $0 50

2733. **Clamps—Iron.**—With strong spring closing the movable jaw. Each 60

2734. **Clamps—Iron.**—Hoffman's, for two burettes or tubes. Each 1 00

2735. **Clamps—Iron.**—Hoffman's double improved form. Each 1 00



2736



2737

Clamps—Iron.—Bunsen's, for burettes.

2736. Small, opening ⅜ to 1¼ inch. Each $0 50
2737. Medium, opening ⅜ to 2 inches. Each 75
2740. **Clamps—Iron.**—For very large apparatus, condensers, flasks, etc., with universal fastener. The jaws adapt themselves to very irregular shapes. Each..... $1 50
2742. **Clamps—Brass.**—Triangular, with adjusting screws to support different sizes of crucibles. Each $1 25



2746

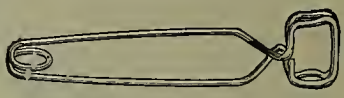


2747

2746. **Clamps—Wood.**—For test tubes; with rubber bands. Each $0 15
2747. **Clamps—Wood.**—V-shape, for holding test tubes. Each 20



2748



2751

2748. **Clamps—Wood.**—For test tubes, with wire spring. Each $0 25
2751. **Clamps—Stoddard's.**—Of spring wire. Each 15



2753—2754—2755

Clamps—Chaddock's.—Of spring wire.

2753. For test tubes, with rubber covered jaws. Each $0 25
2754. For beakers, with rubber covered jaws. Each 25
2755. For evaporating dishes, of plain wire. Each 35
2761. **Clamps—Battery.**—Of brass, for Bunsen batteries.

Opening, inches	⅝	⅞	1⅛	1½
Each	$0.15	.20	.25	.30



2771



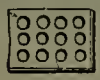
2773

2771. **Clamp Holders.**—For fastening clamps to supports.

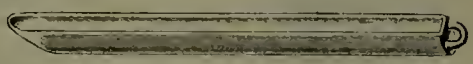
Size	Small	Large
Each	$0.20	.25

2773. **Clamp Holders.**—Universal, to set at any angle. Each $0 50

Clinometers.—(See Compasses, No. 2845, etc.)



2791



2816

2781. **Cobalt Glass.**—For detecting potassium flame; blue-colored plates, 3 x 3 inches. Each $0 15

2791. **Color Test Plates—Bead Plates.**—Of porcelain, with 12 depressions. Each. 65

2816. **Combustion Boats.**—Of Royal Berlin porcelain, for organic analysis.

Sizes, mm.	60x12	80x12	105x12
Each	$0.25	.25	.30

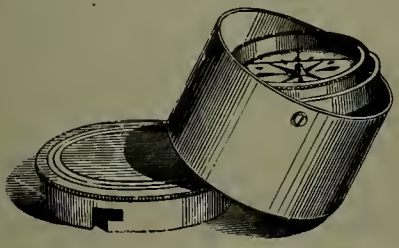
(See also Platinum Ware, No. 5426.)

2821. **Combustion Furnaces—Liebig's.**—For charcoal, 18 inches long. Each..... $2 50

2823. **Combustion Furnaces—Bunsen's.**—For gas; each burner has a separate stopcock; extra tiles and clay covers with each furnace.

Number of burners	10	15	20	25
Each	$18.00	24.00	30.00	37.00

(See also Furnaces.)



2832



2833

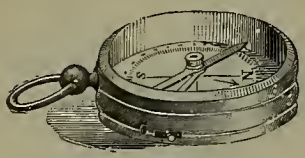
Compasses—Mariners'.—In brass case, with cover.

Diameter of face, inches	2	2¼	2¾
2831. Plain, each	$1.75	2.00	2.25
2832. With universal joint	4.00	4.50	5.00

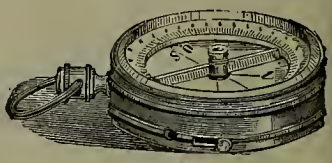
2833. **Compasses—Mariners'.**—Brass frame, mounted on stand, with universal joint, 2-inch face. Each $5 00

2834. **Compasses—Mariners'.**—Brass frame, mounted in wooden box, with universal movement.

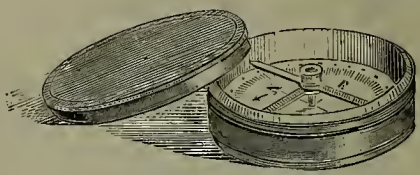
Diameter of face, inches	3¼	4½	5½	6½
Each	$4.50	6.00	10.00	15.00



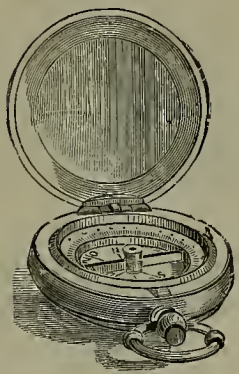
2839



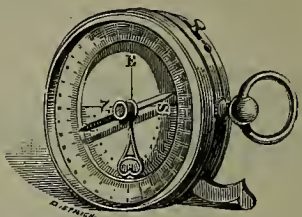
2840



2844



2841



2845

2836. **Compasses—Surveyors'.**—Pocket form, with cover.

Diameter of face, inches	1½	2
Each	$0.25	.35

2837. **Compasses—Surveyors'.**—Pocket, watch shape, spring cover, loose needle, graduations on paper.

Diameter of face, inches	1¼	1½
Each	$0.35	.45

Compasses—Surveyors'.—Pocket, watch shape, without cover, with stop for needle.

Diameter of face, inches	1¼	1⅝
2839. Graduated on bottom. Each	$1.00	1.20
2840. Graduated on raised circle	1.25	1.50

2841. **Compasses—Surveyors'.**—Pocket, watch shape, spring cover, stop for the needle, graduated on metal.

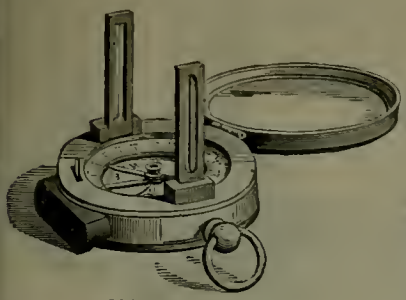
Diameter of face, inches	1⅜	1¾
Each	$2.50	2.75

2844. **Compasses—Surveyors'.**—Pocket, round form, with cover, double circle stop for needle. A very strong and serviceable article.

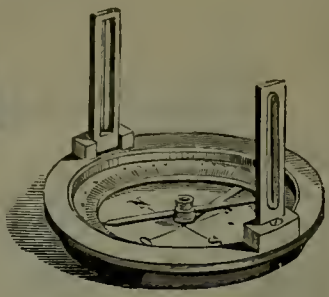
Diameter of face, inches	1¼	1⅝
Each	$1.50	1.75

2845. **Compasses—Surveyors'.**—Pocket, with clinometer and two dials, stop for the needle.

Diameter of face, inches	2⅜	2¾
Each	$4.00	4.50



2846

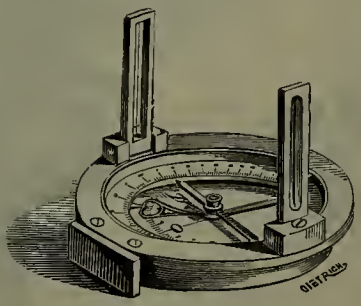


2849

Compasses—Surveyors'.—Watch pattern, nickel-plated case, folding hair-sights, stop for the needle.

	Diameter of face, inches	2	2⅜	2¾
2846.	Plain, each	$6.00	6.50	7.00
2847.	With clinometer, each	6.50	7.00	8.00

2849. **Compasses—Surveyors'.**—Round shape, bronze frame, folding hair-sights; in morocco case; diameter of face, 3¾ inches. Each $9 00



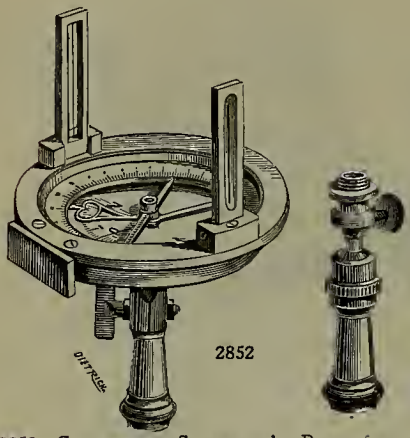
2850

2850. **Compasses—Surveyors'.**—Brass frame, folding hair-sights, clinometer, stop for the needle, flat plate for horizontal plane; morocco case.

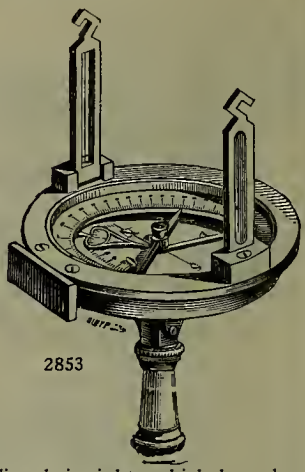
	Diameter of face, inches	3¼	3⅝	4
	Each	$7.50	8.00	9.00

Compasses—Surveyors'.—Brass frame, folding hair-sights, stop for the needle, ball and socket joint. In polished mahogany case.

	Diameter of face, inches	2¾	3⅛	3⅝
2851.	Without clinometer. Each	$10.00	10.50	11.00
2852.	With clinometer. Each	10.50	11.00	12.00



2852



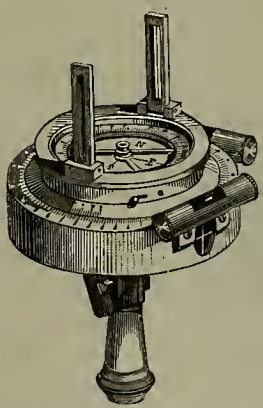
2853

2853. **Compasses—Surveyors'.**—Brass frame, with folding hair-sights which have hook for suspension on a string or wire, universal joint, clinometer; in mahogany case.

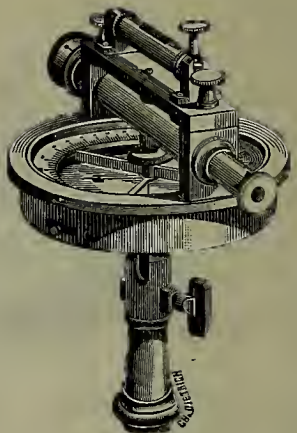
Diameter of face, inches	2¾	3¼	3⅝
Each	$11.00	12.00	12.50

2854. **Compasses—Surveyors'.**—Brass frame, folding hair-sights with hooks for suspension, ball and socket joint, with two levels at right angles; leather case.

Diameter of face, inches	2¾	3¼	3⅝
Each	$12.00	12.50	13.00



2855



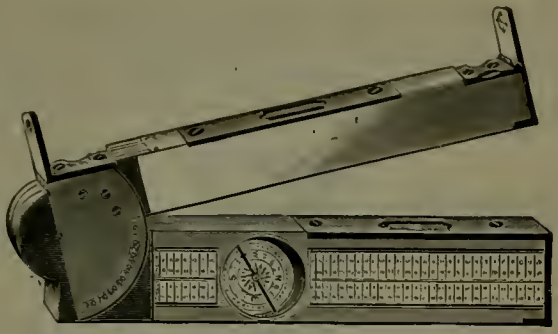
2856

2855. **Compasses—Surveyors'.**—With folding hair-sights on top of instrument and also in body of same; two levels at right angles; outer circle for taking interior angles; 2-inch needle; universal joint; walnut case. Each $20 00

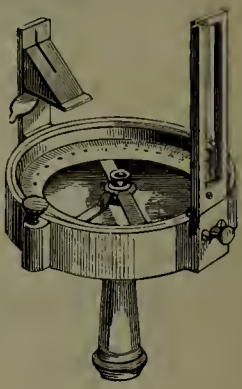
Compasses—Surveyors'.—With telescope 8 inches long and level that can be adjusted; can be used for surveying and leveling; in walnut case.

2856. With ball and socket joint. Each $30 00

2857. With parallel screws for tripod. Each $32 00



2864





2863 2861

2859. **Compasses—Surveyors'.**—With 8-inch telescope; vertical arc, with vernier for taking angles of elevation; compass for horizontal angles, so constructed that it can be placed over the vertical axis of the instrument or shifted to one side when the telescope is to be used for measuring vertical angles; level on one side, parallel screw adjustment; in wooden box, with tripod. Each.....**$45 00**

2861. **Compasses—Surveyors'—Prismatic.**—For topographical work, giving horizontal or vertical angles by means of a combination of prisms; with plain socket for a Jacob staff; in morocco case. Each**$16 50**

2863. **Compasses—Surveyors'—Brunton's Patent.**—This is really a pocket transit, being a folding compass measuring 2¾ x 2¾ x 1 inch, that can be used without a tripod; vertical and horizontal angles can be taken, the sighting and reading being simultaneous. Each**$25 00**

2864 **Compass—Clinometer.**—Of boxwood, with two levels, compass inclination scale and folding hair-sight; in leather case for the pocket. Each.....**$15 00**

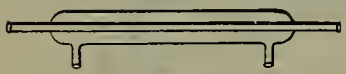
2867. **Compasses—Attwood's Mining Clinometer and Compass.**—With a table of fall of angles, two levels at right angles and hair-sights; the whole is mounted on metal open frame 6½ x 3 inches and ½ inch thick; with leather case. Each.**$15 00**

Compressors—"Advance."—For laboratory use, in operating distillate burners and for aerating cyanide vats. The crank-shaft is a solid steel forging, the flywheel is heavy and of large diameter, insuring steady motion. The shaft is carried in one long bearing, which is bronze bushed and has an oil chamber. Crank bearing is of bronze; piston fitted with three spring rings. Both valves in head of cylinder, which can easily be removed.

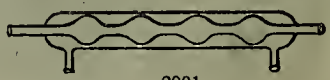


2876

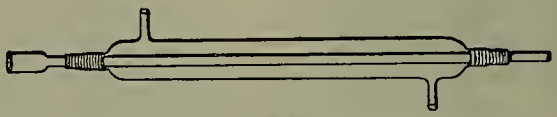
2876. No. 1, with 3-inch cylinder and 4-inch stroke. Each $50 00
2877. No. 2, with 5-inch cylinder and 6-inch stroke. Each 75 00



2896



2901



2898

2896. **Condensers—Liebig's.**—Made entirely of glass, the condenser tube being sealed to the glass.

Body, inches	10	12	15	18	24	30
Each	$0.85	1.00	1.15	1.25	1.50	2.00

2898. **Condensers—Liebig's.**—Inner tube connected to outer tube by rubber connections.

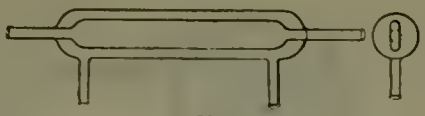
Outer tube, inches	12	18	24	30	36
Each	$1.00	1.25	1.50	2.00	2.50

2899. **Condensers—Liebig's.**—Similar to preceding, but with inner tube of Resistance glass.

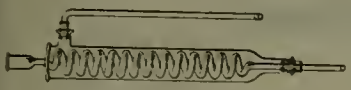
Outer tube, inches	12	16	20	24	30
Each	$1.25	1.50	1.65	1.85	2.00

2901. **Condensers—Allihn's.**—All glass.

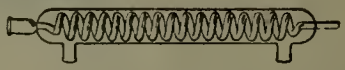
Body, inches	8	10	12	16
Each	$1.00	1.20	1.40	1.65



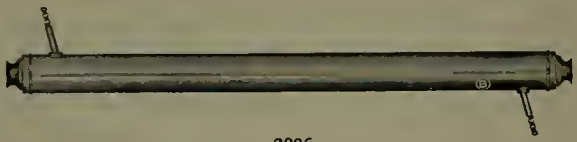
2902



2903



2904



2906

2902. Condensers.—Of glass, flat condensing tube sealed in the body, thus giving greater surface.

Length of body, inches	12	20	25
Each	$1.25	2.00	2.50

2903. Condensers—Glass.—Consisting of a worm inside of a conical vessel, inlet for cold and outlet for warm water.

Length, inches	6	8	9	10	10	12	12
Diameter, inches	1	1¼	1½	2	3	2	3
Each	$0.65	1.00	1.25	1.50	1.75	2.00	2.25

2904. Condensers—Glass.—Similar to the preceding, but with the inner tube sealed to the outer tube.

Length, inches	8	10	12	15	18
Each	$1.50	1.80	2.00	2.50	3.00

2906. Condensers—Brass.—Liebig's form, of highly polished brass.

Length, inches	12	15	20	24	27	30
Each	$2.50	3.00	3.50	3.75	4.00	4.50

2910. Condensers—Zinc.—With heavy block tin worm, for use in connection with copper stills.

Size of still, gallons	½	1	2	3	5
Condensers to fit. Each	$3.60	4.00	5.00	6.00	9.00

2916. Condenser Tubes.—Of glass, free from lead, cut to order. Per pound....$1 00

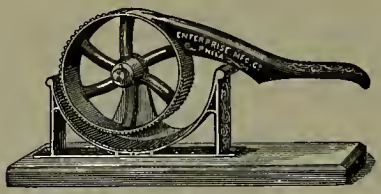
Connectors.—(See Stopcocks, No. 6316.)

2926. Corks—Tapering.—Regular length XX quality.

No.	1	2	3	4	5	6
Diameter small end, inches	¼	5/16	⅜	7/16	½	17/32
Per gross	$0.13	.13	.15	.18	.23	.26

No.	7	8	9	10	11	12
Diameter small end, inches	9/16	⅝	11/16	¾	13/16	29/32
Per gross	$0.34	.43	.50	.64	.68	.74

No.	13	14	15	16	18	20
Diameter small end, inches	1	11/32	11/16	1⅛	1¼	1⅜
Per gross	$0.83	.91	1.00	1.30	1.60	2.00



2958

2928. Corks—Flat.—For wide-mouth bottles, ½-inch thick.

Diameter, inches	1	1⅛	1¼	1⅜	1½	1⅝
Gross	$0.18	.25	.31	.38	.47	.57
Diameter, inches	1¾	1⅞	2	2¼	2½	3
Gross	$0.69	.83	.90	1.15	1.50	2.75

2936. Cork Extractors.—Of wire, for pulling corks out of narrow-mouth bottles.
Each $0 15

2946. Cork Plates.—Size 10 x 4 inches; for mounting specimens, etc.

Thickness, inches	⅛	¼	⅜
Per dozen	$1.00	1.25	1.50

2956. Cork Presses.—Flat, of cast iron. Each $0 35

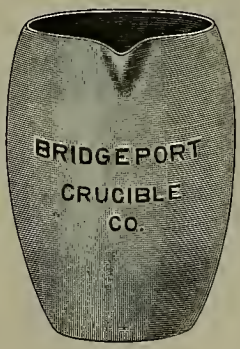
2958. Cork Presses.—Rotary for large and small corks, the corks being compressed by the rolling of the wheel. Each $0 75

2961. Corkscrews.—Of good quality. Each 50

2971. Covers—Glass.—Circular; ground glass, for beakers, etc.

Diameter, inches	3	4	5	6	7
Each	$0.15	.20	.25	.30	.40

2981. Crucibles—Charcoal.—For blowpipe analysis. Per dozen $0 50



2986



2986

2986. **Crucible—Graphite** (Plumbago or Black Lead).—For bullion or foundry melting.

Nos.	Holding Capacity, Liquid Measure.			Height Outside.	Diameter at the Top Outside.	Diameter at the Bilge Outside.	Diameter at the Bottom Outside.	Price Each.
	Gal.	Qt.	Pt.	Inches	Inches	Inches	Inches	
0				2	1½	1⅝	1¼	$0 25
00				2⅜	1⅞	1⅞	1⅜	25
000				2½	1⅞	2⅛	1½	25
0000				3	2⅜	2½	1¾	25
1			¼	3⅝	3⅛	3	2¼	35
2			½	4½	3¾	3⅝	2¾	40
3			¾	5¼	4¼	4⅛	3	45
4			1	5⅝	4⅝	4½	3¼	50
5			1½	6	4⅞	4¾	3½	55
6		1		6½	5¼	5⅛	3¾	65
8		1	½	7¼	5¾	5¾	4¼	75
10		1	1	8	6	6½	4¾	90
12		2		8	6¼	6¾	5	95
14		2	1	8½	6¾	7¼	5½	1 00
16		2	1	8¾	7	7½	5½	1 10
18		3	1	9¾	7⅜	8	5¾	1 25
20	1			10¼	7¾	8⅜	6	
25	1		1	10¼	8	8⅝	6¼	
30	1	1	1	11	8⅝	9¼	6½	
35	1	2	1	11⅝	9¼	9¾	7	
40	2			12⅜	9¼	10¼	7¾	
45	2	1		13	9¾	10½	7⅝	
50	2	3		13½	10⅛	11¼	7⅞	
60	3			14	10⅜	11⅝	8	
70	3	1		14½	10⅞	12	8¼	
80	3	2	1	15⅜	11⅛	12⅜	8⅝	
90	4			15⅞	11½	12½	9	
100	4	2	1	16	11⅞	13⅛	9⅜	
125	4	3	1	16⅝	12½	13¾	9½	
150	6	3		18¼	13¼	14¾	10⅜	
175	7	3	1	19½	14¼	15¾	10¾	
200	9	3	1	20½	15	16½	11¼	
225	10	1	1	20¾	15¼	16¾	12½	
250	10	3		20½	15¼	17	12½	
275	11	3		22⅜	15	16⅝	12½	
300	12	2		22	16¼	17½	12½	

No. 20 and above are 7 cents per number. These prices are **not guaranteed**, but change very often.

As a general rule, bullion refiners calculate 30 ounces to the number as the quantity of base bullion for each size of crucible.



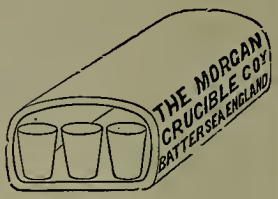
2991



2993



2994



2995

2989. Crucible Covers.—Of graphite, for the above crucibles.

No.	1	2	3	4	5	6	8	10	12	14	16
Each	$0.20	.20	.20	.20	.25	.30	.30	.30	.35	.35	.35

All sizes above No. 16 are 2 cents per number, subject to changes.

2991. Crucibles—Clay—Battersea.—Round form.

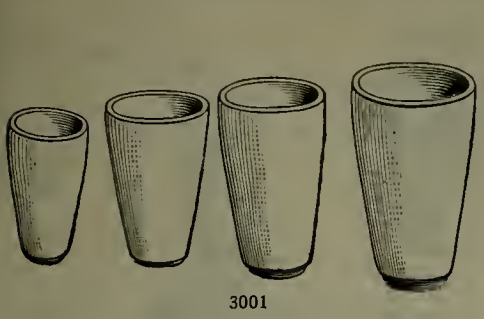
No.	Height, in.	Diam., in.	Quantity in bbl.	Price, per 100	Covers, per 100
D	3⅞	2¼	500	$ 3.50	$ 2.25
E	4½	2⅞	500	5.50	3.50
F	5	3⅜	500	6.00	4.00
G	5⅝	3⅜	400	8.00	5.00
H	5⅞	3¾	500	10.50	5.50
J	6⅝	4⅜	...	12.00	6.00
K	7¼	4¾	...	13.50	8.75
L	8	5¼	...	24.00	8.75
N	9⅜	6½	...	35.00	10.50
P	11	7¾	...	60.00	14.50
R	13	9⅜	...	100.00	21.00

2993. Crucibles—Clay—Battersea.—Triangular form.

No.	Height, in.	Diam., in.	Quantity in bbl.	Price, per 100	Covers, per 100
S	4½	4⅛	200	$10.00	$4.00
T	4	3¾	250	7.50	4.00
U	3½	3⅛	500	4.00	3.50
V	3¼	2⅞	750	3.50	3.25
X	2½	2¼	750	2.25	2.40

2994. Crucibles—Clay—Battersea Fluxing Pots.—Similar to French Crucible in size, form, number and capacity.

No.	Height, in.	Diam., in.	Quantity in bbl.	Price, per 100	Covers, per 100
7	4¼	2½	500	$ 6.50	$2.25
8	4¾	2⅝	500	7.00	2.25
9	5¼	2⅞	350	8.00	3.50
10	5⅞	3⅛	250	13.00	5.00





2995

2995. **Crucibles—Clay—Battersea—Colorado Pattern.**—Straight sides, low form, to fit inside of muffle, as per illustration. Made of **soft clay**; the kind we send unless otherwise ordered.

Capacity	Height, in.	Diam., in.	Quantity in bbl.	Price, per 100	Covers, per 100
5 grammes	2¾	2⅜	1000	$2.50	$2.25
10 "	3⅛	2⅝	800	3.00	2.25
12½ "	3⅜	2¾	800	3.00	2.25
15 "	3½	2⅞	750	3.00	2.25
20 "	3¾	3	700	4.00	3.50
30 "	4⅝	3¼	450	6.00	4.00
40 "	5¼	3⅝	400	7.50	5.25

2996. **Crucibles—Clay—Battersea—Colorado Pattern.**—Like preceding, but **burnst hard.** Same prices.

3001. **Crucibles—Clay—Denver Make.**—For open furnace work.

No.	Height, in.	Diam., in.	Quantity in bbl.	Price, per 100	Covers, per 100
D	4	2¼	600	$3.50	$2.25
E	4½	3	400	5.50	3.50
F	5	3	300	6.00	4.00
G	5⅝	3⅜	200	8.00	5.00

3003. **Crucibles—Clay—Denver Make—French Pattern.**

No.	Height, in.	Diam., in.	Quantity in bbl.	Price, per 100	Covers, per 100
6 or D	4	2¼	600	$3.50	$2.25
8	5	2½	375	7.00	2.25
9	5¾	3	250	8.00	3.50

3004. **Crucibles—Clay—Denver Make.**—Straight sides, low form, for muffle work. **Soft burnt.**

Capacity	Height, in.	Diam., in.	Price, per 100	Covers, per 100
5 grammes	2⅝	2⅜	$2.50	$2.25
10 "	3	2⅝	3.00	2.25
12 "	3¼	2¾	3.00	2.25
15 "	3½	2⅞	3.00	2.25
20 "	3¾	3	4.00	3.50
30 "	4¾	3¼	6.00	4.00
40 "	5⅝	3⅜	8.00	5.00

3005. **Crucibles—Clay—Denver Make.**—Like preceding, but **hard burnt.** Same prices.


3026


3033


3031


3038

3026. **Crucibles—Sand or Hessian.**—For assaying and jeweler's work. Triangular form, in nests.

Size	3s	Small 5s	Large 5s	6s	8s
Number in nest	3	4	5	6	7
Width of top, inches	2¼	3	3½	4¾	5¾
Height, inches	3½	4	4½	5½	6½
Per dozen, nests	$0.40	.65	1.40	2.75	4.50
Covers, per dozen		.40	.50	.65	

3027 **Crucibles—Sand or Hessian.**—Single.

Size	Small 5s	Large 5s	6s	8s
Per dozen	$0.50	.90	1.50	2.25

Crucibles—Porcelain.—Of Royal Meissen ware; with or without covers, which are extra.

No.	11	10	9	8	7	6
Height, inches	7/16	½	¾	1	1¼	17/16
Diameter, inches	½	¾	1	13/16	1⅜	19/16
Capacity, cc.	22	3	4	8	15	24
Capacity, oz.	1/16	1/10	⅛	¼	½	¾
3031. Crucibles, each	$0.09	.10	.12	.13	.14	.15
3032. Covers, each	.03	.03	.03	.03	.03	.05

No.	5	4	3	2	1	0
Height, inches	1⅝	1⅞	2⅛	2⅜	2¾	3¼
Diameter, inches	2	2¼	2⅝	2¾	3¼	3¾
Capacity, cc.	35	60	90	125	175	250
Capacity, oz.	1¼	2	3	4	6	8
Crucibles, each	$0.17	.21	.30	.35	.45	.60
Covers, each	.05	.05	.05	.10	.15	.25

Crucibles—Porcelain.—Royal Berlin ware, glazed throughout; with or without covers, which are extra.

No.	000	00	0	1	2	3	4	5
Height, inches	¾	1	1	1⅛	1⅜	1¾	2	2¾
Diameter, inches	1	1⅜	1⅝	1⅞	2¼	2¾	3¼	3½
Capacity, cc.	5	15	20	30	40	70	150	250
Capacity, oz.	1/6	½	⅔	1	1⅓	2⅓	5	8
3033. Crucibles, each	$0.09	.15	.22	.25	.35	.42	.52	.60
3034. Covers, each	.03	.03	.03	.05	.05	.08	.08	.15

3036. **Crucibles—Porcelain—Gooch's Form.**—With perforated bottom and with cover. Each $0 75

3038. **Crucibles—Porcelain—Rose.**—Unglazed, with perforated cover and tube.

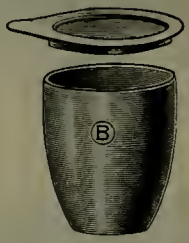
Capacity, ounces	½	1	2
Each	$0.60	.75	1.00



3044



3041



3051

3041. **Crucibles—Iron.**—Of light spun metal, with cover.

Diameter, inches	1½	2⅛	2½	3⅛	3¾
Capacity, ounces	½	1	2	4	8
Each	$0.25	.30	.40	.50	.75

3044. **Crucibles—Iron—Skidmore's.**—Normal school form. For making oxygen from dioxide of manganese, calcination of chalk and recovery of the expelled CO_2, preparation of ammonia, distillation of coal or wood, etc.

Capacity, ounces	1½	6
Each	$1.00	2.00

3046. **Crucibles—Copper.**—Of light spun metal, with cover.

Diameter, inches	2	2⅜	3⅜
Capacity, ounces	1	2	4
Each	$0.70	.90	1.25

Crucibles—Nickel.—Of pure wrought nickel, very practical for alkali solutions, where platinum crucibles would be ruined.

Diameter, cm.	3½	4	5	6	8	10
Capacity, cc.	20	30	50	75	160	250
3051. Crucibles, each	$0.40	.50	.60	.70	1.00	1.50
3052. Covers, each	.20	.25	.30	.35	.50	.75

3053. **Crucibles—Silver.**—Of pure metal, with cover; of the same shape as platinum crucibles.

Capacity, cc.	20	30	50	75	100
Weight, grammes	45	60	80	100	150

Prices quoted.

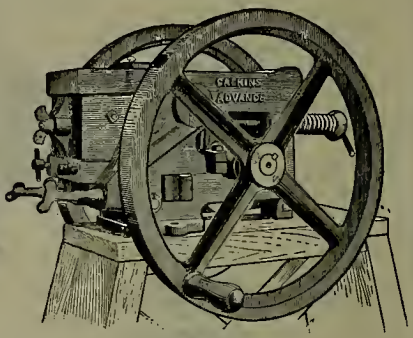
(See also Platinum Ware, No. 5441.)

3056. **Crucible Racks.**—Made of heavy sheet-iron, for holding 10 assay crucibles while mixing the assay; each hole numbered. Each $2 50

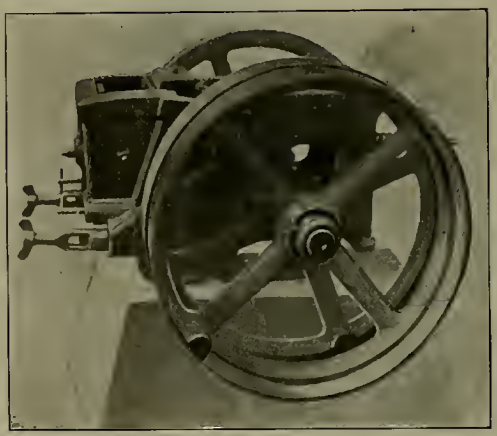
3061. **Crushers—Taylor's Hand Crusher.**—A very powerful machine, suitable for prospectors as well as assayers. It will enable a person to quickly bring the hardest ores to a fine powder and gives a product of uniform fineness. By turning the knob the adjustment is made for fine or coarse product. Total length, 36 inches; width, 10 inches; weight, 88 pounds; jaws, 6½ x 3 inches, opening 2¼ inches. Each $25 00



3066



3081



3083



3071

3066. **Crushers—Weatherhead.**—A mortar, crusher and pulverizer combined. Provided with two handles, whereby the muller can be worked with see-saw motion and insures the crushing of large pieces that could not be worked with one handle. As the material becomes smaller, one handle can be taken off and a rotary motion continued until the whole is ground down fine. Diameter, 10½ inches; height, 8½ inches; weight, 100 pounds, of which the muller alone weighs 65 pounds. Each **$25 00**

3071. **Crushers—Prospectors'.**—An ideal machine for small laboratories and for prospectors. Cleaned in a minute. Weight, 50 pounds. Each **$15 00**

Crushers—Advance.—A toggle movement machine, giving the maximum power with the minimum expenditure of energy. Differing from all others in the means of adjustment, which is effected at the front end of the machine and in no way affects the inclination of the vibratory jaw. Access can be had to all parts of the machine when cleaning, as both jaws and sides are exposed when the crushing chamber is swung open for cleaning.

3081. Hand size; jaws opening 2½ x 3 inches. Weight, 170 pounds. Price..... **$30 00**

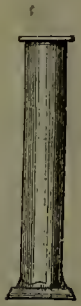
3083. Power size; jaws opening 3 x 4 inches. Tight and loose pulleys. Diameter of crank-shaft, 1½ inches. Weight, 280 pounds. Price $60 00
(See also Grinders, No. 4111; Mortars, No. 5036; Rolls, No. 5836.)
See Catalogue of the Calkins Specialties for full description.



3116



3132



3133

3101. **Cupels.**—Made of best bone ash.

Diameter, inches	1	1¼	1½	1¾	2
Per dozen	$0.25	.25	.35	.40	.50

Cupel Presses.—(See Moulds, No. 5106, and Presses, No. 5556.)
Cups—Porous.—(See Batteries.)

3116. **Cyanide Test Plant.**—For making a 300-pound test in accordance with latest practice. Thoroughly well constructed and will be appreciated in any laboratory where accuracy and convenience are an object. The frame which holds the tank is strong and neat and is made in sections, to make a compact package for shipment. Composed of:
3 leaching tanks, 20 inches diameter by 3 inches deep;
2 solution tanks, 10 " " 10 " "
2 gold tanks, 10 " " 4 " "
2 sump tanks, 18 " " 8 " "
2 zinc boxes, 15 inches long, divided into 5 compartments;
Pipe and fittings and 5 pounds of zinc shavings, to load zinc boxes.
Complete $35 00

3131. **Cylinders.**—Hydrometer jars. All glass, with plain top.

Height, inches	6	6	6	8	8	10	10	12
Diameter, inches ...	1	1½	2	1½	2	1½	2	1½
Each	$0.20	.30	.35	.30	.35	.35	.40	.40
Height, inches	12	12	15	15	18	18	18	20
Diameter, inches	2	3	1½	2	1½	2	3	2
Each	$0.45	.60	.50	.55	.65	.80	1.00	1.00

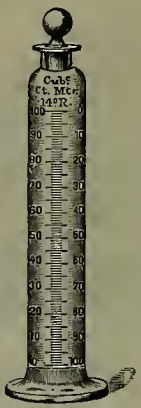
3132. **Cylinders.**—All glass, with lip. Same prices as preceding.

3133. **Cylinders.**—All glass, with rim. Same prices as preceding.


3136


3137


3138


3139


3156

Cylinders—Volumetric.—Of glass; open form with lip. Graduations either single or double (reading up and down).

	Capacity, cc.	5	10	25	50	100	150	200	250	500	1000	2000
3136.	Single graduations	$0.25	.30	.38	.45	.60	.65	.75	.90	1.25	2.00	3.00
3137.	Double graduations	.30	.35	.55	.60	.70	.75	.90	1.10	1.50	2.50	3.50

Cylinders—Volumetric.—Of glass, stoppered. With single graduations or with double graduations (reading up and down).

	Capacity, cc.	10	25	50	75	100	150
3138.	Single graduations	$0.40	.53	.68	.75	.83	.90
3139.	Double graduations	.45	.60	.75	.85	.90	1.00

	Capacity, cc.	200	250	500	1000	2000
	Single graduations	$1.00	1.15	1.50	2.50	4.00
	Double graduations	1.15	1.30	1.75	2.75	4.50

Cylinders—Volumetric.—Divided into grains.

	Capacity, grains	250	500	1000	2000	5000	10,000
3146.	Open, with lip	$0.40	.50	.75	.90	1.25	1.75
3147.	Glass stoppered	.60	.75	1.00	1.25	1.50	2.00

Desiccators.—A porcelain acid dish under a ground rim bell-jar on a ground-glass plate.

	Diameter of dish, inches	4	5	6
3156.	Complete	$2.50	3.00	3.50
3157.	Acid dish only	1.00	1.25	1.50


3158


3159


3160

Desiccators—Fresenius' Form.—Two glass jars ground together, with round top.

	Diameter inside rim, inches	4	5	6
3158.	Plain shape, each	$1.25	1.75	2.25
3159.	With glass stopcock in cover	3.00	3.50	4.00



3161



3164



3181



3201

3160. Desiccators—Scheibler's.—Of glass, with knob top, ground air tight to fit rim.

Diameter inside, inches	4	5	6
Each	$0.80	1.00	1.25

3161. Desiccators—Scheibler's.—Of glass, like preceding, but with glass stopcock in cover and hook for suspension.

Inner diameter, inches	4	5	6
Each	$3.00	3.50	4.00

3162. Desiccators—Hempel's.—Arranged to carry the drying agent in the upper part, as water vapor by its lower specific gravity will then be carried away more readily.

Inner diameter, inches	4	5	6
Each	$1.50	2.00	2.50

3163. Desiccators—Hempel's.—Similar to preceding, but with a stopcock on cover.

Diameter, inches	4	5	6
Each	$3.50	4.00	4.50

3164. Desiccators—Fruhling & Schultz.—With porcelain plate. Height, 7 inches; diameter, 8 inches. Each $6 50

3165. Desiccators.—Same as preceding, but with glass stopcock in cover. Each.. $9 00

3171. Dialysers.—Tall form, complete.

Capacity	1 qt.	½ gal.
Each	$1.50	1.75

3173. Dialysers.—Low form, complete.

Diameter, inches	6	8
Each	$2.00	2.50

3181. Diamonds.—Ebony handle, to write on glass. Each $2 50

3186. Diamonds.—Ebony handle, for cutting glass. Each 4 00

3201. Dippers.—Agate iron, wood handle, for quicksilver.

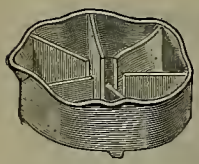
Diameter of pan, inches	4½	5¼
Each	$0.50	.75

3204. Dippers.—Black iron riveted; wood handle. Very strong. Diameter, 4½ inches. Each $1 00

3208. Dippers.—Black lead; also called Dipping Cups. Three-cornered, for bullion.

Number	1	2	3
Each	$0.75	.85	.95

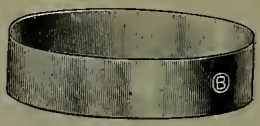
(See also Ladles, No. 4571.)



3216



3226



3236

3216. **Dishes—Acid.**—Of porcelain, for desiccators, etc.

Diameter, inches	4	5	6
Each	$1.00	1.25	1.50

3226. **Dishes—Crystallizing.**—Of best Bohemian glass; cylindrical form, straight sides.

Diameter, inches	2	2½	3	3½	4	5
Each	$0.15	.20	.25	.30	.35	.45
Diameter, inches	6	7	8	9	10	
Each	$0.50	.65	.80	.90	1.10	

3236. **Dishes—Aluminum.**—For milk analysis.

Diameter, inches	2	2½	3	3½	4
Height, inches	½	⅝	¾	⅞	1
Each	$0.22	.25	.30	.35	.40



3241



3242



3246



3256

Dishes—Evaporating.—Iron, porcelain lined, with spout.

Diameter, inches	4	5½	7¼	8	10½	12	13¾	16½
Capacity, cc.	200	500	1000	1500	2000	4000	6000	8000
3241. Without handles, each	$0.35	.50	.75	1.00	...	...	...	...
3242. With handles, each	...	.60	.80	1.00	1.25	1.50	1.75	2.50

3246. **Dishes—Evaporating.**—Glass, half round, with lip.

Diameter, inches	1½	2	2½	3	3½
Each	$0 10	.12	.15	.20	.25
Diameter, inches	4	5	6	7	8
Each	$0.30	.40	.50	.65	.80

3251. **Dishes—Evaporating.**—Nickel, same shape as the platinum dishes, with lip.

Diameter, inches	1⅝	2	2⅜	2¾	3¼	3⅝	4	4¾	6
Each, about	$0.45	.55	.65	.85	1.00	1.25	1.50	2.00	2.50

3256. **Dishes—Evaporating.**—Porcelain, of Royal Meissen or Saxon ware; shallow form, with lip. Glazed inside and upper half outside.

Number	11	10	9	8	7	6	5
Diameter, inches	2¾	3⅜	4¼	4⅞	5½	6⅝	7⅝
Capacity, ounces	⅔	1¾	4	6	9½	17	28
Each	$0.15	.20	.30	.40	.50	.75	1.00

Number	4	3	2	1	0	00	000
Diameter, inches	8¾	9⅞	11	12¼	13¼	14½	15¾
Capacity, ounces	37	57	75	1 gal	1¼ gal	1⅔ gal	2¼ gal
Each	$1.35	1.75	2.00	2.65	3.50	5.00	6.00



3258



3262



3266

3258. Dishes—Evaporating.—Porcelain, of Royal Berlin make; of the same shape as the preceding.

No.	00	0	1	2	3	4	5
Diameter, inches	2¾	3⅛	3⅜	3⅝	4	4⅜	4¾
Capacity, ounces	1	1½	2¼	3¼	4	6	8
Each	$0.15	.20	.30	.35	.40	.45	.50
No.	6	7	8	9	10	11	12
Diameter, inches	5¾	7	8½	10	12	14	16
Capacity, ounces	11	22	40	60	¾ gal	1⅛ gal	2½ gal
Each	$0.65	.90	1.20	1.75	2.75	3.75	6.50

3260. Dishes—Evaporating.—Porcelain, shell form, shallow, with spout; glazed inside only.

No.	000	00	0	1	2	3	4
Diameter, inches	2	2¼	3	3⅝	4½	5¼	6½
Each	$0.10	.12	.15	.20	.25	.30	.40
No.	5	6	7	8	9	10	11
Diameter, inches	8	9½	10½	11¾	12¼	13	14
Each	$0.50	.65	.85	1.00	1.25	1.65	2.00

3261. Dishes—Evaporating.—Porcelain, heavy, with flat bottom and straight sides.

Diameter, inches	2½	3¾	3¼	3⅝	4
Capacity, ounces	1¾	2½	3½	5	6½
Each	$0.20	.20	.25	.30	.35

3262. Dishes—Evaporating.—Porcelain; flat form, with curved sides; with spout; for evaporating without boiling.

Diameter, inches	2⅝	3¼	3⅝	4¼
Each	$0.18	.20	.25	.30

3264. Dishes—Evaporating.—Porcelain; half round shape, with lips; glazed inside only.

No.	0	1	2	3	4	5	6	7
Diameter, inches	2	2⅜	2¾	3¼	3⅝	4	4½	5¼
Capacity, ounces	¾	1	1¾	2½	4	5	7	10
Each	$0.15	.15	.20	.25	.30	.35	.40	.45

3266. Dishes—Evaporating.—Porcelain; heavy ware, with strong rim; deep form.

No.	8	7	6	5	4
Diameter, inches	5½	6½	7½	8½	9½
Capacity, ounces	16	22	32	50	64
Each	$0.50	.65	.75	.85	1.00
No.	3	2	1	0	00
Diameter, inches	10½	11½	12½	14½	16½
Capacity, gallons	¾	1	1½	2	3
Each	$1.35	1.70	2.25	3.25	4.25

3276. Dishes—Lead.—Shell form, for etching on glass with hydrofluoric acid.

Diameter, inches	2½	3	3½	4	5	6
Each	$0.20	.25	.30	.35	.40	.50

3279. **Dishes—Lead.**—Rectangular form, for acids, etc.

Size	4x2x1	4x4x1	6x4x1
Each	$0.50	.65	.90

3280. **Dishes—Lead.**—Cylindrical form, for acids.

Diameter, inches	4½	6	8
Height, inches	1	2	3
Each	$0.50	.75	1.00



3286



3291

3286. **Dishes—Petrie.**—For cultures. A double dish, very flat, loosely fitting cover.

Diameter, inches	3	4
Each	$0.30	.35

3291. **Dishes—Sugar.**—Of solid nickel for sugar analysis, with tare weight; deep form with lip, 3 inches diameter. Each $3 00

3301. **Dropping Tubes.**—With rubber bulbs, to be used as pipettes. Per dozen..$0 30

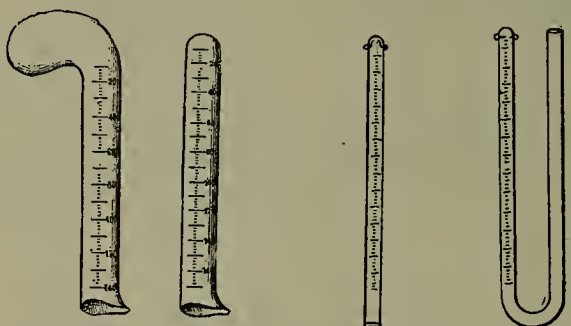
Drying Apparatus.—(See Baths 1866, Desiccators 3156.)

Drying Bulbs.—(See Potash Bulbs, No. 5536.)

3326. **Emery Cloth.**—For cleaning metal parts. Per dozen sheets $0 50

3328. **Emery Paper.**—Per dozen sheets 35

3330. **Emery Powder.**—Per pound 20



3351 3352 3354 3356

Eudiometers—Bunsen's Absorption Tubes.—Graduated into 250 mm.

3351. Straight form. Each $0 75

3352. Bulb end. Each 1 00

3353. **Eudiometers—Bunsen's.**—Straight form, with platinum electrodes, graduated into millimeters.

Length, mm.	250	300	500	800
Each	$2.00	2.50	3.00	3.50

3354. **Eudiometers—Bunsen's.**—With platinum electrodes, graduated into cubic centimeters.

Capacity, cc.	50x⅕	100x⅕
Each	$2.25	2.75

3355. **Eudiometers—Mitscherlich's.**—With platinum electrodes and glass stopcocks. Graduated into cubic centimeters.

Capacity, cc.	50x⅕	100x⅕
Each	$3.00	3.50

3356. **Eudiometers—Ure's U-Shape.**—With platinum electrodes.

Capacity, cc.	50x⅕	100x⅕
Each	$2.50	3.50

Faucets.—(See Stopcocks, No. 6316.)

Files.—Of best quality.

	Length, inches	3	4	5	6	8
3371.	Round, for cork boring. Each	$0.15	.15	.20	.25	.35
3373.	Triangular, for cutting glass	.15	.15	.20	.25	.35
3375.	Flat, for general use	.15	.15	.20	.30	.40

Filters—Mallie's Pasteurizing.—These filters are based upon the experiments made by Pasteur, Koch and others upon the various filtering materials, and are the result of many years' study. They have solved the problem of holding back microbes and organic material without altering the purity and other elements of drinkable water.

The filtering material is undestroyable and not liable to putrefaction; it is a barrier to the passage of dangerous germs and can be easily cleaned at any time.

The Mallie Filters have received the commendation of all the highest medical authorities in Europe.



3386



3388



3391

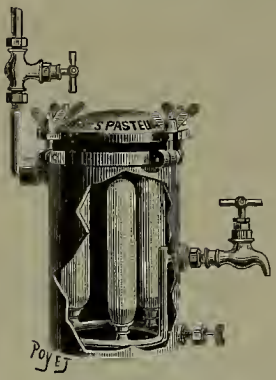
3386. **Household Filter.**—Composed of a metal tube containing a sterilizing bougie, and having a faucet that can be connected with a pipe or hydrant. Capacity per 24 hours 5 to 6 gallons. Each $6 50

3388. **Household Filter.**—Similar to preceding, but supported on a bracket; a stopcock on the bottom allows the unfiltered water to run out at any time. Each.. $18 00

Household Filter.—Ordinary shape. An earthenware cylinder holding a movable filtering recipient into which the water is poured, the outer cylinder acting as a reservoir for the filtered water.

3391. Size, 18 in. high, 9½ in. diameter, capacity 1½ gals. Each..... $6 00

3392. Size, 20 in. high, 9½ in. diameter, capacity 2¼ gals. Each..... 7 50



3396



3408

3396. **Filter Battery.**—With 3 bougies, for filtering under pressure, giving 75 gallons in 24 hours; 12 inches high, 8 inches diameter; contained in a strong cast-iron cylinder. Each $40 00

These batteries are imported to order only.

3406. **Filters or Filter Bags.**—Cotton, of best woven material, with hooks for suspension.

No.	H	I	J	K	O	P
Capacity, gallons	2	3	5	7	12	15
Price, each	$0.75	1.00	1.20	1.50	1.75	2.00

3408. **Filters.**—Felt, of light material.

No.	1	2	3	4	5
Diameter, inches	8	9	11	12	13
Depth, inches	8½	10	12¼	13½	14½
Capacity, gallons	¼	½	¾	1	1¼
Price, each	$0.50	.75	.90	1.25	1.50
No.	6	7	8	9	19
Diameter, inches	14	16	18	20½	22½
Depth, inches	16	17½	20	22½	24½
Capacity, gallons	1⅔	2	3	4	5½
Price, each	$2.00	2.50	3.25	4.00	5.00

3416. **Filtering Apparatus.**—For rapid filtration, consisting of a heavy cone-shape bottle, glass funnel, rubber stopper, exhaust pump and simple valves.

Capacity, ounces	4	8	16
Price, each	$2.00	2.50	3.00

Filter Paper.

Note.—The price of filter paper is subject to the variations in the customs tariff and to other causes, and **cannot be guaranteed.**

3436-7. **Filter Paper—French.**—Made by Bernard Dumas & Co., the best in the market. Re-enforced centers and radiations to support the weight of the liquid, thus decreasing chances of breakage. This advantage has caused them to be preferred by the leading druggists, etc. In sheets 17x21 inches—43x53 centimeters.

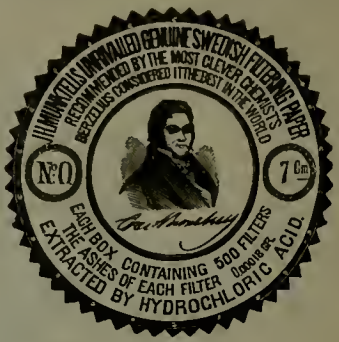
Color	White (3436)	Gray (3437)
Per ream of 480 sheets	$4.50	4.00
Per quire of 24 sheets	.25	.25

Filter Paper—French.—Cut in packages of 100 sheets.

Diameter, cm.	13	15	19	25	33	40	45	50	65
Diameter, inches	5	6	7½	10	13	16	18	20	26
3438. Per package, white	$0.20	25	.30	.40	.60	.70	.90	1.10	3.00
3439. Per package, gray	.18	.20	.25	.30	.50	.60	.80	.90	2.50



3441-3445



3442

Filter Paper—Munktell's Swedish.—This is the best filter paper made. It is in sheets 48 x 48 cm. = 19 x 19 inches; of five grades.

3441. **No. OB.**—Washed in hydrochloric acid, removing all traces of iron, aluminum, lime; the ash is reduced to a minimum and a high standard of purity obtained. A heavy paper, uniform and quick filtering, retaining the finest precipitates.

3442. **No. O.**—Washed in hydrochloric acid and similar to the preceding, but somewhat lighter. It retains the finest precipitates.

3443. **No. 1 F.**—Of best linen material, uniform in thickness, very strong, leaving the smallest traces of any unwashed filter paper and retaining tthe finest precipitates.

3444. **No. 2 F.**—Heavier than the preceding, but as closely woven and more rapid in filtering.

3445. **No. 3 F.**—A very heavy and quick filtering paper.

No.	OB	O	1 F	2 F	3 F
Price, per ream			$20.00	17.00	14.00
Price, per quire	$2.50		1.20	1.00	.80

Filter Paper—Munktell's Swedish.—Cut round, in packages of 100 sheets each.

Diameter, cm.	5½	7	9	11	12½	15	18½
Diameter, inches	2⅛	2¾	3⅝	4⅜	5	6	7⅜
3446. No. 00, per pkg.	$0.50	.60	.80	1.00	1.10	1.25	...
3447. No. 0, " "	.20	.27	.42	.55	.63	.85	1.25
3448. No. 1 F, " "	.11	.16	.25	.30	.40	.50	.72
3449. No. 2 F, " "	.10	.13	.20	.26	.31	.40	.63
3450. No. 3 F, " "	.08	.10	.15	.18	.24	.32	.41

Filter Paper—Schleicher & Schull's.—Unsurpassed for tenacity, rapidity of filtering and cheapness. We have several grades of them, as follows:

3456. No. 595, a light but strong filtering paper, well adapted for analytical work, free from chlorine.

3457. No. 597, a heavier paper, less closely woven than the preceding.

3458. No. 598, an extra heavy paper for very rapid filtering, and retainnig very fine precipitates.

3459-61. No. 589, a double-washed paper (by hydrochloric and hydrofluoric acids) for quantitative work.

White Ribbon Brand: Very rapid and retaining the finest precipitates; best adapted for most purposes and always sent when No. 589 is ordered without further specification (3459).

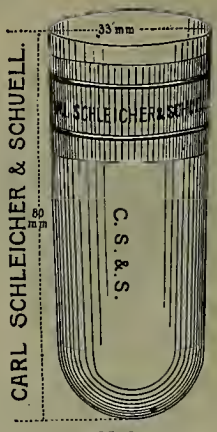
Black Ribbon Brand: Soft and of loose composition, filters very quickly; adapted for iron analysis (3460).

Blue Ribbon Brand: Of close, firm texture, suitable for filter pumps, retaining the finest precipitates (3461).

These are all of the same price.



3466



3506

3462. No. 590, a double-washed paper, similar to the preceding, but more closely woven and lighter.

3463. No. 575, hardened filters, capable of standing a pressure of two atmospheres while retaining the finest precipitates.

No.	595—19x21 in.	597—23x23 in.	598—23x23 in.
Per ream of 480 sheets	$10.00	18.00	30.00
Per quire of 24 sheets	.60	1.00	1.65

Filter Paper—Schleicher & Schull's.—Cut round; in packages of 100 sheets.

Diameter, cm.	5½	7	9	11	12½	15
Diameter, inches	2¼	2¾	3⅝	4⅜	5	6
3466. No. 595, per package	$0.12	.16	.20	.23	.25	.30
3467. No. 597, " "	.15	.20	.25	.30	.35	.40
3468. No. 589, " "	.60	.70	.90	1.10	1.35	1.60
3469. No. 590, " "	.75	.80	1.15	1.45	1.65	2.00
3470. No. 575, " "	.70	.80	1.00	1.25	1.50	1.80
Diameter, cm.		18½	24	27	32	38½
Diameter, inches		7⅜	9⅝	10¾	12¾	15½
No. 595, per package		$0.40	.60	.85	1.00	1.25
No. 597, " "		.55	.75	.90	1.15	1.50

Filter Paper—Folded—Bernard Dumas & Co.—In packages of 100 sheets.

Diameter, cm.	15	19	25	33	40	45	50
Diameter, inches	6	7½	10	13	16	18	20
3486. White, per package	$0.45	.51	.62	.75	1.00	1.10	1.25
3487. Gray, " "	.42	.48	.58	.69	.90	1.00	1.15

3488. **Filter Paper—Folded—Schleicher & Schull's.**—No. 588, for general use, of excellent quality, free from chlorine; in packages of 100.

Diameter, cm.	12½	15	18½	24	32	38½
Diameter, inches	5	6	7½	9⅝	12¾	15½
Per package	$0.30	.36	.42	.60	1.00	1.30

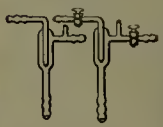
3506. **Filter Paper Thimbles—Schleicher & Schull's.**—Fat free, for milk and fat determinations by the Soxhlet and other extraction apparatus. In boxes of 25 thimbles.

Size, mm.	33x80	19x90	33x94	43x123
Per box	$2.25	2.00	3.00	4.00


3532


3536


3544


3546-7


3549

Filter Pumps.—On base.

3531. Without gauge. Each $4 00
3532. With vacuum gauge. Each 8 00

Filter Pumps—Chapman's.—Of brass, to adapt to a water faucet.

3536. Small size. Each $1 50
3537. Large size. Each 3 00
3538. Faucet connections. Each 40

Filter Pumps—Richards'.—For water pressure only; made of brass to connect with screw water faucet.

3543. Extra large size, 1-inch bore, 12 inches long. Each $2 50
3544. Small size, ⅛-inch bore 1 50
3545. Large size, ¼-inch bore 2 00

Filter Pumps—Fischer's Model.—Made of glass.

3546. Plain. Each $1 50
3547. With two stopcocks. Each 3 00

Filter Pumps—Muencke's Model.—Of glass.

3548. With single suction. Each $1 25
3549. With double suction. Each 1 50



3556


3562


3561


3581


3582

3556. **Filter Racks.**—Of wire, to keep the filter from the glass.

Diameter, inches	4	5	6	7	8	10	12
Price, each	$0.15	.20	.25	.30	.30	.35	.45

3561-3. **Filter Rings.**—Of porcelain, to support small funnels.

Number of arms	1	2	3
Each	$0.20	.25	.35

3571. **Finger Cots.**—Of rubber, of various sizes.
Light. Per dozen $0 50
Heavy. Per dozen 50

3581-2. **Flasks—Boiling.**—Of Bohemian glass, with vial mouth, with either flat bottom, as No. 3581, or round bottom, as No. 3582.

Capacity, ounces	1	2	4	6	8	12
Each	$0.09	.10	.12	.15	.18	.23
Capacity, ounces	16	24	32	48	64	96
Each	$0.25	.30	.35	.40	.45	.60
Capacity, gallons	1	1¼	1½	2	2½	3
Each	$0.80	.95	1.15	1.35	1.75	2.00


3588


3585


3583


3585


3591


3594

3583. **Flasks—Boiling.**—Of Bohemian glass, with flat bottom and heavy ring around the neck, to bear corking.
Same prices as preceding.

3585. **Flasks—Boiling.**—Erlenmeyer's form; low and wide.

Capacity, ounces	1	2	4	6	8	16	24	32
Each	$0.09	.10	.12	.15	.18	.25	.30	.35

3586. **Flasks—Boiling.**—Flat bottom, low form, wide mouth.

Capacity, ounces	2	3	4	6	8
Each	$0.15	.20	.20	.25	.30

3588. **Flasks—Boiling.**—For copper determinations, wide mouth, flaring neck, pear shape.

Capacity, ounces	2	4	6	8	16	32
Each	$0.12	.14	.15	.17	.25	.35

3589. **Flasks—Boiling.**—Kjeldahl's form, of hard glass, pear shaped for digesting.

Capacity, cc.	200	250	500
Each	$0.35	.40	.50

3591. **Flasks—Evolution.**—For gases, with rubber stopper, delivery tube and connections.

Capacity, ounces	4	8	16
Each	$0.50	.65	.75

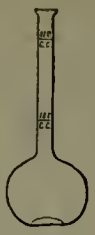
3592. Bottle, alone. Each 20 .30 .35

Flasks—Evolution.—For gases, with safety funnel ground to fit tightly into mouth of flask, delivery tube, etc.

Capacity, ounces	8	16	32
3593. With thistle tube. Each	$1.25	1.50	1.75
3594. With bulb funnel. Each	1.40	1.65	1.90


3596


3601


3621


3603


3612



3619


3602

3596. Flasks—Filtering.—Of heavy glass, with side tube, for rapid filtering.

Capacity, ounces	4	8	16	24
Each	$0.35	.40	.50	.60

3601. Flasks—Fractional Distillation.—With tubulure half way up the neck. Also called Digesting Flasks.

Capacity, ounces	2	4	8	16	32
Each	$0.25	.30	.35	.45	.65

3602. Flasks—Fractional Distillation.—Like preceding, but with side tube bent at an angle.

Same prices as preceding.

3603. Flasks—Fractional Distillation.—Ludenburg bulbs.

Capacity, cc.	100	150	250
With 3 bulbs. Each	$0.50	.60	.75

3605. Flasks—Fractional Distillation.—Bredt's, with two outlet tubes. Each.....$0 75

3611. Flasks—Parting.—Cone shape, with lip.

Capacity, ounces	2	4
Each	$0.15	.20

3612. Flasks—Parting.—Cone shape, with ring.

Capacity, ounces	1	2	3	4
Each	$0.10	.12	.13	.15

3614. Flasks—Parting.—Kennedy shape.

Capacity, ounces	1
Per dozen	$1.25

3616. Flasks—Pressure.—For digestion; of heavy glass, well annealed, and patent stopper.

Capacity, ounces	4	8
Each	$0.75	1.00

3619. Flasks—Polarization — Kohlrausch's, for saccharometric determinations, with mark on neck.

Capacity, cc.	50	100	200	200.6	201.4
Each	$0.30	.40	.50	.55	.60

3621. Flasks—Sugar Determination.—With two marks on neck.

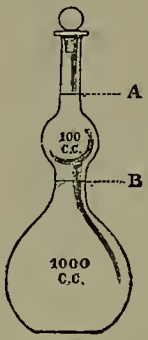
Capacity, cc.	50/55	100/110	200/220
Each	$0.30	.40	.60



3631



3632



3634



3638



3636-7



3640



3644

Flasks—Volumetric.—"Litre Flasks," most accurately gauged, with mark on neck.

	Capacity, cc.	10	25	50	100	125	150
3631.	Open. Each	$0.15	.20	.25	.30	.32	.33
3632.	Stoppered. Each	.20	.25	.30	.35	.38	.40

Capacity	200	250	500	1000	2000	
Open. Each	$0.35	.40	.60	.75	1.00	
Stoppered. Each	.50	.60	.75	.90	1.25	

3634. **Flasks—Volumetric.**—Giles' model, for making normal solutions; graduated at 1000 and 1100 cc. Each $1 50

FLASKS.—Of Resistance glass (R) **for resisting sudden changes in temperature and the action of corrosive chemicals.**

3636-7. **Flasks—Boiling.**—Resistance glass, vial mouth, with either flat bottom, as No. 3636, or round bottom, as No. 3637.

Capacity, ounces	1	2	4	6	8	12	
Each	$0.11	.12	.15	.18	.22	.28	

Capacity, ounces	16	24	32	48	64	96	128
Each	$0.32	.36	.42	.48	.55	.75	.96

3638. **Flasks—Boiling.**—Resistance glass, with ring neck for corking and flat bottom.

Capacity, ounces	2	4	8	16	24	32	48	64
Each	$0.14	.17	.25	.35	.40	.48	.55	.65

3640. **Flasks—Boiling.**—Erlenmeyer's form, of Resistance glass.

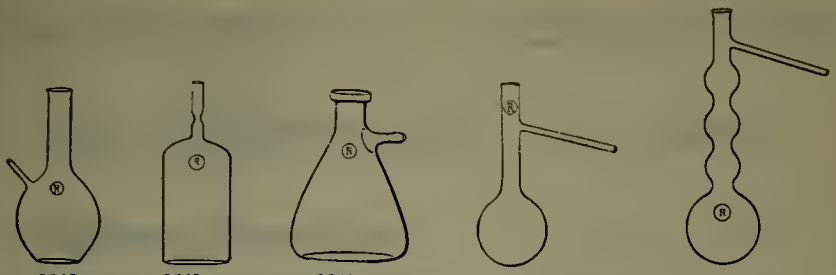
Capacity, ounces	2	4	8	16	24	32
Each	$0.12	.15	.22	.30	.35	.40

3642. **Flasks—Boiling.**—Of Resistance glass, vial mouth, wide neck.

Capacity, ounces	2	4	6	8
Each	$0.18	.24	.30	.36

3644. **Flasks—Boiling.**—Of Resistance glass, Kjedhal's form, for digesting.

Capacity, cc.	100	200	250	500
Each	$0.30	.40	.45	.55



3648 3649 3651 3656 3657

3646. **Flasks—Copper Determination.**—Of Resistance glass, pear shape, wide mouth, broad flange.

Capacity, ounces	2	4	6	8	16
Each	$0.14	.17	.18	.21	.30

3648. **Flasks—Culture—Pasteur's.**—Of Resistance glass, for bacteriological work, with tube in body of flask

Capacity, cc.	125	250	500
Each	$0.35	.45	.65

3649. **Flasks—Culture—Petrusky's.**—Flat shape, of Resistance glass. Each$0 60

3651. **Flasks—Filtering.**—Of Resistance glass, with heavy ring mouth, side tube.

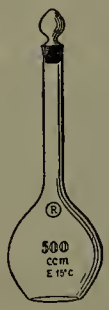
Capacity, ounces	8	16	32
Each	$0.45	.60	.90

3656. **Flasks—Fractional Distillation.**—Of Resistance glass.

Capacity, cc.	50	100	250	500
Each	$0.28	.35	.42	.55

3657. **Flasks—Fractional Distillation.**—Of Resistance glass, Ladenburg form.

Capacity, cc.	100	150	250
With 3 bulbs. Each	$0.60	.75	.90



3662

Flasks—Volumetric.—Of Resistance glass.

Capacity, cc.	10	25	50	100	125	150	200	250	500	1000	2000
3661. Plain. Each	$0.20	.25	.30	.35	.40	.40	.43	.50	.70	.90	1.25
3662. Stoppered. Each	.25	.30	.36	.43	.45	.45	.56	.70	.95	1.15	1.50

3665. **Flasks—Jena Glass.**—Boiling, flat bottom.

Capacity, cc.	50	100	200	300	500	1000	2000
Each	$0.11	.12	.16	.20	.28	.40	.53


3708


3713


3710


3712

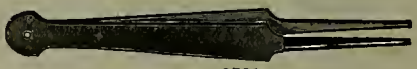

3706




3717


3716


3720


3721

3666. **Flasks—Jena Glass.**—Erlenmeyer form.

Capacity, cc.	50	100	150	200	300	600	1100
Each	$0.10	.11	.13	.14	.18	.28	.38

3667. **Flasks—Jena Glass.**—Kjeldahl.

Capacity, cc.	200	300	500	800	1000
Each	$0.20	.25	.33	.39	.47

FLOATS.—(See Burette Floats.)

3671. **Foil—Aluminum.**—Thin. Per pound $1 00

3676. **Foil—Copper.**—Thin. Per pound 1 00

3681. **Foil—Magnesium.**—Ribbon. Per ounce 50

3686. **Foil—Silver.**—Per ounce 1 25

3691. **Foil—Tin.**—In rolls.

Quality	Heavy	Medium	Light
Per pound	$0.25	.30	.35

Foil—Platinum.—(See Platinum Ware, No. 5451.)

3706. **Forceps or Tweezers.**—Brass, with bent ends $0 35

3708. **Forceps—Steel.**—Nickel-plated, 4 inches long, straight, fine points. Each.. 35

3710. **Forceps—Brass.**—Bent ends, ivory tip 60

Forceps—Nickel-Plated.—4½ inches long, corrugated sides, jaw milled inside. In three grades of point—fine, medium and coarse.

3712. Straight form. Each $0 50

3713. Curved form. Each 60

3714. **Forceps—Platinum Point.**—Steel body, English form. Each 1 50

3716. **Forceps—Steel.**—Nickel-plated, spring jaws, ending on one side in two platinum points. Raynor's form. Each $2 25

3717. **Forceps—Plattner's.**—Brass, with platinum points. Each 2 25

3718. **Forceps—Steel.**—Straight, with slide button. Each 1 00

3720. **Forceps—Steel.**—Nickel-plated, curved, coarse points, 7 inches long, very strong. Each $0 60

3721. **Forceps—Steel Body.**—Very strong; for lifting cupel buttons.

Length, inches	3½	4	4½	5	6	7	8
Each	$0.15	.15	.18	.20	.25	.30	.35

(See also Plyers, No. 5511.)


3736


3737


3738


3740


3741


3743

3736. **Funnels—Glass.**—Ribbed, of cast glass.

Diameter, inches	3½	4	5½	6	7	8½
Capacity, ounces	2	4	8	16	32	64
Each	$0.10	.12	.15	.20	.25	.40

3737. **Funnels—Glass.**—Moulded and deeply fluted.

Diameter, inches	4	6	8	9
Each	$0.45	.60	1.00	1.35

3738. **Funnels—Glass.**—Of best German make; angle of 60; long stem, end cut at an angle.

Diameter, inches	2	2½	3	3½	4	4½
Capacity, ounces	1	2	3½	5½	8	12
Each	$0.10	.12	.15	.15	.20	.20

Diameter, inches	5	6	7	8
Capacity	1 pt.	1½ pts.	1 qt.	3 pts.
Each	$0.25	.30	.40	.50

Diameter, inches	9	10¼	12
Capacity, gallons	½	1	2
Each	$0.60	.85	1.15

3740. **Funnels—Glass.**—Top ground level, long stem cut at an angle.

Diameter, inches	1½	2	2½	3	3½	4	4½
Each	$0.12	.15	.18	.20	.25	.30	.35

3741. **Funnels—Glass.**—With bulb neck.

Diameter, inches	2½	3	3½	4	4½	5	6
Each	$0.15	.20	.25	.30	.35	.40	.50

3743. **Funnels—Glass.**—V. Meyer's form, to suspend over evaporating dishes, with tubulure.

Diameter, inches	6	8	10
Each	$1.25	1.50	1.75

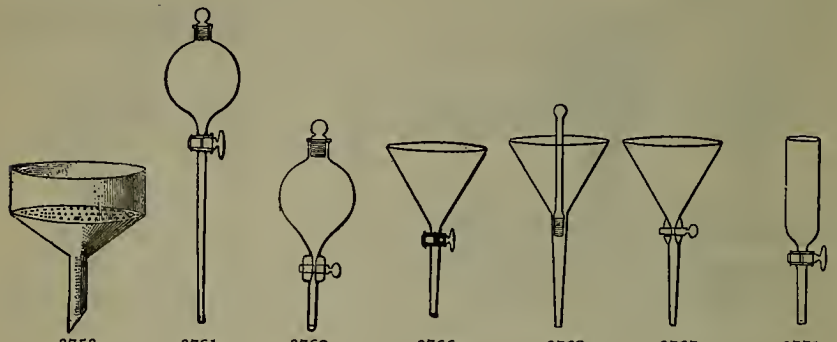

3746


3751

3746. **Funnels—For Blowpipe Work.**—In set of 3. Per set $0 20

Funnels—Porcelain.—Glazed inside, plain or fluted.

Diameter inside, inches	3¼	4	4¾	6	7
3751. Plain. Each	$0.35	.40	.70	1.00	1.50
3752. Fluted. Each	.45	.50	.80	1.25	2.00



3753 3761 3762 3766 3768 3767 3771

3753. **Funnels—Porcelain.**—Buechner's, with fixed porcelain plate, straight walls.

Diameter, inches	4	6
Each	$1.50	2.25

3756. **Funnels—Agate Iron.**—For quicksilver.

Diameter, inches	...	...	...	...
Capacity	½ pt.	1 pt.	1 qt.	2 qts.
Each	$0.25	.40	.50	.75

3758. **Funnels—Hard Rubber.**—For quicksilver, etc.

Diameter, inches	3½	4	5⅜	6½	9
Capacity, ounces	4	8	16	32	64
Each	$0.25	.35	.45	.60	1.35

3761. **Funnels—Separating.**—Globe shape; of light glass, with stopper and stopcock in stem.

Capacity, ounces	1	2	4	6	8	16
Each	$0.75	.90	1.00	1.25	1.40	2.00

3762. **Funnels—Separating.**—Globe shape, like preceding, but of heavy glass.

Capacity, ounces	8	16	32	64
Each	$1.50	2.25	2.75	3.25

3766. **Funnels—Separating.**—Cone shape; of light glass, with stopcock in stem.

Diameter, inches	3	4	5	6	7	8
Capacity	4	8	16	32	45	64
Each	$1.25	1.50	1.75	2.00	2.50	3.00

3767. **Funnels—Separating.**—Cone shape, of heavy glass, with stopcock in stem.

Diameter, inches	4	5	6
Each	$1.50	1.75	2.00

3768. **Funnels—Separating.**—Cone shape, of heavy glass, with rod ground into the neck.

Diameter, inches	3	4	5
Each	$0.45	.55	.65

3771. **Funnels—Separating.**—Cylinder shape, of light glass, with stopcock in stem, open top.

Capacity, ounces	1	2	4	6	8
Each	$0.80	1.00	1.25	1.50	1.75



3772 3773 3774 3775 3776 3781 3782 3786 3787 3788

3772. **Funnels—Separating.**—Cylindrical, like preceding, but top closed with stopper.

Capacity, ounces	5	10	20	30
Each	$1.60	2.00	2.50	3.00

3773. **Funnels—Separating.**—Cylindrical, like preceding, but with side tube.

Capacity, ounces	5	10	20	30
Each	$1.75	2.20	2.75	3.25

3774. **Funnels—Separating.**—Squibbs' form; tapered with wide bore.

Capacity, ounces	4	8	16
Each	$1.60	2.50	3.50

3775. **Funnels—Separating.**—Squibbs' form, like preceding, but graduated.

Capacity, cc.	150
Each	$3.00

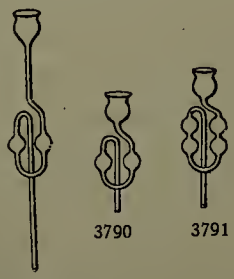
3776. **Funnels—Separating.**—Cup shape, of light glass, with stopcock in stem. Capacity, 4 ounces; diameter, 2 inches. Each $1 25

Funnel Tubes, or Safety Funnels.—With long stem.

Length of stem, inches	8	10	12	15	18
3781. Common form. Each	$0.12	.15	.18	.20	.25
3782. Thistle cup. Each	.10	.12	.15	.18	..

Funnel Tubes.—With bent stems.

3786. Trumpet shape, plain. Each $0 20
3787. Trumpet shape, one bulb on loop. Each 20
3788. Trumpet shape, two bulbs on loop. Each 25



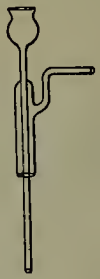
3790 3791

3789

3789. Long pattern, two bulbs. Each 30
3790. Short pattern, with two bulbs. Each 25
3791. Short pattern, with four bulbs. Each 35



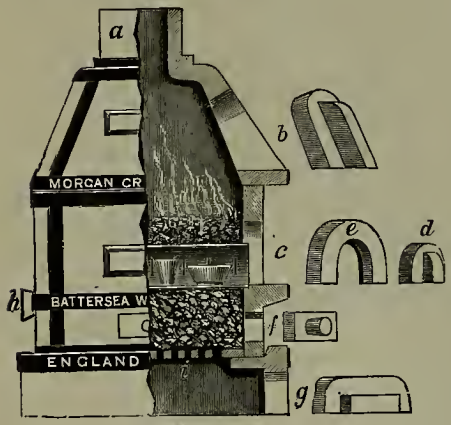
3792



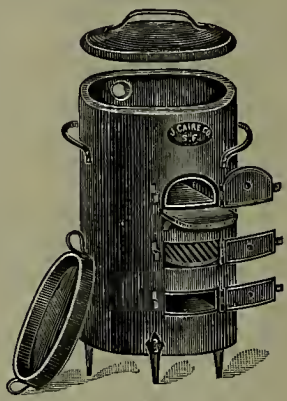
3794

Funnel Tubes.

3793. Welter's safety model. Each $0 60
3794. Vogel's, with thistle cup. Each 40
3795. Babo's. Each 50
3796. S. Bend. Each 20



3811



3816

Furnaces.—(See Blowpipes No. 2191, Burners No. 2565, Lamps No. 4593.)

3811. **Furnaces—Assay.**—Battersea; of clay, iron-bound.

Size	Diam., Inches	Height, Inches	Weight, Lbs.	Price, Each
C	14½	27	185	$32 00
E	16½	29½	235	39 00
F	17½	30	290	44 00

The size indicates the Battersea muffle which fits the furnace.

Furnaces—Assay.—Portable, brick lined, with sheet-iron jacket. They have a cast-iron arched cover and sand bath; hinged door to each opening, with a resting place in front of muffle opening. A bracket shelf for the cover can be adapted whenever required. Grate bars are movable and can be replaced; there is a cast-iron sleeve for the stovepipe at the back. Meltings can be made in the crucible while the muffle is in place.

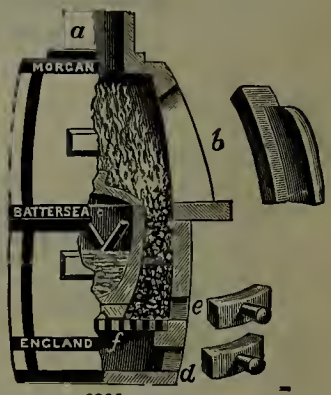
No.	1	2	3	4
Interior diameter, inches	10	11	12	12
Height, inches	20	25	26	26
Weight, pounds	58	98	140	216
Size of muffle	4x10½	5¼x10½	5x12	6x12
3816. Each, complete	$12.00	14.00	18.00	20.00
3817. Cast-iron cover		1.50	1.50	1.75
3818. Sand bath	.75	1.00	1.00	1.25
3819. Grate bars, wrought iron	.50	.50	.60	.75
3820. Tripod for bars	1.00	1.00	1.25	1.50
3821. Sheet-iron pipe, in 24-inch lengths, each	.25	.25	.30	.35
3822. Elbows, each	.25	.25	.30	.35

3826. **Furnace—Smelting.**—These furnaces are similar to preceding in construction, but have no muffle opening. They are used wherever it is required to melt a large quantity, as they can hold a No. 18 B. L. crucible, leaving a space for the introduction of fuel and the working of the tongs. 500 ounces of silver bullion can be melted easily.

Diameter inside, inches	12½	14½
Each	$20.00	25.00



3836



3836

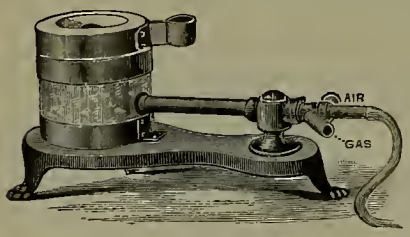
Furnaces—Melting.—For jewelers; of clay, French pattern. Very convenient and portable.

No.	1	2	3	4	5	6
Taking graphite crucible	2	4	6	8	10	14
Weight, pounds	46	64	77	106	121	143
Each	$10.00	12.00	14.00	16.00	20.00	25.00

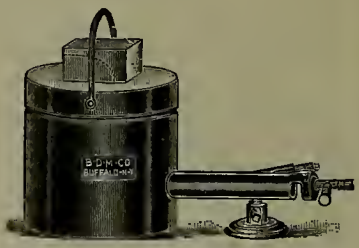
3836. **Furnaces—Melting.**—Battersea; of clay, iron-bound; portable.

Size	Height, Ins.	Diam. Outside, Ins.	Weight, Lbs.	Each
B	20	11	67	$13 50
C	22	14	90	16 00
D	26	14½	115	21 50

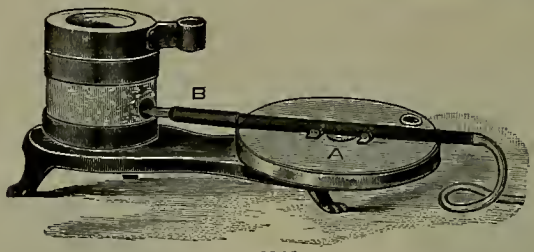
Furnaces—Fletcher's No. 40 A.—For gas. They are noiseless in action and work with a small supply of gas from a ⅜-inch pipe. When the full supply of gas is turned on and the blower connected with the air-way full open, the bellows are worked, and then the gauze nozzle of burner is placed tight against the casing. The thumb on the side of the burner adjusts the air supply, which should produce a flame not over two inches long.



3841



3848



3846

3841. Complete furnace, without blower $4 50
3842. Extra burners. Each 2 50
3843. Furnace body and cover 1 50
3845. Stand alone, without burner 90

Furnaces—Fletcher's No. 40 B.—For gasoline. The burner in this furnace is constructed on the principle of an atomizer, thus dispensing with a wick. The supply of oil is regulated by turning the milled nut, marked "A," shown on top of the reservoir, and the addition of air is regulated by turning the sleeve, marked "B," around the annular jet. The burner can be easily taken apart and cleansed.

3846. Complete furnace, without blower $5 00
3847. Extra burners. Each 3 00

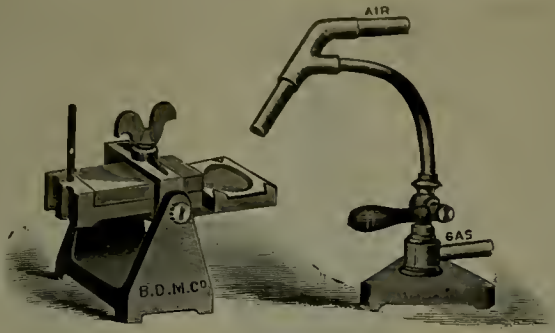
For other parts see Furnace 40 A, just described.

Furnaces—Fletcher's Perfected Injector Gas Furnaces.—They are adapted to the requirements of jewelers. No. 41 takes a black lead crucible No. 1, holding 2 pounds of metal; while No. 41 A takes a crucible No. 3, holding 6 pounds of metal. A crucible accompanies each furnace.

3848. Furnace No. 41, complete, without blower. $4 50
3849. Furnace, No. 41 A, complete, without blower 7 00
3850. Extra burners for No. 41. Each 1 50
3851. Extra burners for No. 41 A. Each 2 00

Furnaces—Fletcher's No. 8 Melting Arrangement.—Used in connection with a blowpipe, by which 2 ounces of gold can be molded in two minutes. A crucible of molded carbon is supported by a sheet-iron slide, clamped to a mold so as to swivel in a V-shaped cast-iron stand. The flame of the blowpipe is directed on the metal while in the carbon mold, and after the metal is fused, it is tilted into the ingot mold, which is kept hot by the waste heat.

3853. Furnace complete with mold, without blowpipe $3 25
3854. Extra carbon crucibles. Per dozen 1 00
3855. Extra molds, for wire or plate. Each 1 25



3853



3856

Furnaces—Fletcher's No. 8 D Melting Arrangement.—For coal gas only; for melting metals without the use of a furnace. Similar to the preceding in operation, the two parts of the ingot mold sliding over each other so as to obtain an ingot of any width. It requires a foot bellows, being a blowpipe in itself.

3856. Complete, without foot bellows. Each $3 00

3857. Extra ingot molds. Each 1 25

3858. Extra carbons. Per dozen 1 00

3861. **Furnace Muffle—Wiesnegg's.**—Takes muffle $7^{3}/_{10}$ inches long, 4¾ inches wide and 2⅛ inches high; complete with one muffle and burners $17 00

3862. Extra muffles. Each 75

Calkins Furnaces. — The Calkins Furnaces are the result of the evolution into higher, more efficient and more economical types of appliances for the laboratory and mill, the product of years of study as to the needs of the assayer and mill man.

While a summary of the advantages of these furnaces appears in this catalogue, we would refer for more ample description to the special catalogue of the Calkins Company, which we are ready to furnish upon application.

In these furnaces the combustion chamber is circular, the only rational form for a fire-box; the firing is done on a tangent to the inner surface of the fire-box, the flame thus not playing on the crucibles and muffle, being distributed evenly everywhere. This principle is applied to all sizes and styles of the Calkins Furnaces, whether for gasoline, distillate or crude oil.

The induction device used in these furnaces for supplying the necessary supply of air is the best oxidizer in the world. Cupellation becomes rapid and uniform, the cupels in the back getting as much heat as those in front, the vitiated air and lead fumes being carried away very rapidly. This is a very important feature and one that will be appreciated by assayers, as it multiplies the working capacity of the muffle.

The most refractory fire-brick on the market is used in these furnaces, and they are encased in an iron jacket that will not burn out, the parts exposed to intense heat being of cast iron.



3866



3871

3866. **Furnaces — Crucible — Advance No. 5.** — Holding five 20-gramme crucibles; fired tangentially, thus insuring long life to the crucibles and perfect melting. Of best refractory brick, with heavy sheet-steel jacket, burner opening protected by cast-iron boss. In good working order fifteen minutes after starting the burner. The Advance Hydro-Carbon Burner is ideally adapted to this furnace. Height over all, 12 inches; outside diameter, 12 inches; crucible chamber, 8 inches in diameter, and 6 inches high in the clear.
Weight, 50 pounds. Price, net **$12 00**

3867. **Furnaces—Crucible—Advance No. 10.**—Of same construction as preceding, but holding ten 20-gramme crucibles. Height over all, 16 inches; outside diameter, 16 inches; crucible chamber, 12 inches diameter and 8 inches high in the clear.
Weight, 110 pounds. Price, net **$15 00**

3871. **Furnaces—Muffle—Advance.** — Taking a muffle 4 x 6 x 12, and adapted to the Advance burner. With a circular combustion chamber under the muffle, insuring uniform heating; the improved induction draft bonnet rendering all parts available

for oxidizing purposes. Height over all, 22 inches; combustion chamber, 4½ inches high, 12 inches diameter, tightly enclosed except burner hole. Weight, 140 pounds. Price, net$18 00



3873



3876



3881-3882

3873. Furnace—Muffle—Calkins'.—For large scorifications, and for doing crucible work in the muffle. They are adapted to the Challenge Burner, and take a muffle 6½ x 10 x 16, holding 8 crucibles of 20 grammes; are equipped with induction draft bonnet. Weight, 240 pounds. Price net$30 00

3874. Furnace—Muffle—Calkins'.—Same as preceding, but taking muffle 6½ x 10½ x 19, holding ten 20-gramme crucibles. Weight, 245 pounds. Price, net.....$30 00

3876. Furnace—Calkins' Double Muffle.—Used with crude oil and the Calkins' Distillate Burner; intended for those plants where it is desired to make crucible assays in the muffle, while making scorifier assays at the same time. The muffles are 10 x 16 x 6½, the lower one for crucible work, and the upper one for scorification and cupellation. The lining is of the best refractory brick, and the jacket of heavy steel, the front being of cast-iron, and the muffles closed with cast-iron doors. Outside diameter, 25 inches, height (exclusive of stack), 35 inches; weight (including stack), 750 pounds. Price, net$65 00

3877. Furnace—Calkins' Double Muffle.—For parties desiring to erect and brick in their own furnace, we furnish the brick, cast-iron front, and stack. Knocked down, total weight, 635 pounds. Price, net$40 00

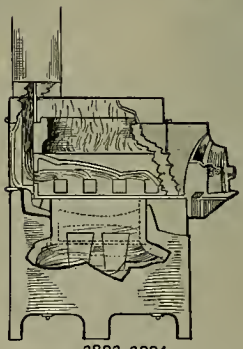
3881. Furnaces—Combination—"Advance" No. 1.—For melting and muffle; holds one 20-gramme crucible and three 1¼-inch cupels. This furnace is especially designed for prospectors. Outside diameter, 7 inches; height over all, 15 inches; muffle, 1½ x 2½ x 5½. Weight, 17 pounds. Price, net$10 00

3882. **Furnaces—Combination—"Advance" No. 3.** — For melting and muffle, holding three 20-gramme crucibles; for tangential firing; one burner making three simultaneous melts and supplying ample heat for double number of cupellations. Its construction is identical with that of the furnace described under No. 3884 of this catalogue. Outside diameter, 11 inches, and height over all, 19 inches; crucible chamber, 7 inches diameter, and 6 inches high in the clear; muffle, 3 x 4¾ x 7. Weight, 50 pounds. Price, net $16 00





3883-3884



3883-3884

3883. **Furnaces—Combination—"Advance" No. 5.**—Similar to preceding, but holding five 20-gramme crucibles, and taking 12 or more cupels. Outside diameter, 14 inches; height over all, 20 inches; crucible chamber, 8 inches in diameter and 6 inches high in the clear; muffle, 4¾ x 8 x 3. Weight, 85 pounds. Price, net. $20 00

3884. **Furnaces—Combination—"Advance" No. 10.**—Similar to preceding, but taking ten 20-gramme crucibles (or 8 G. crucibles), and holding 18 cupels of 1½ inches. Outside diameter, 16 inches; height over all, 21 inches; crucible chamber, 12 inches diameter, and 6 inches high in the clear. Weight, 180 pounds. Price, net $25 00

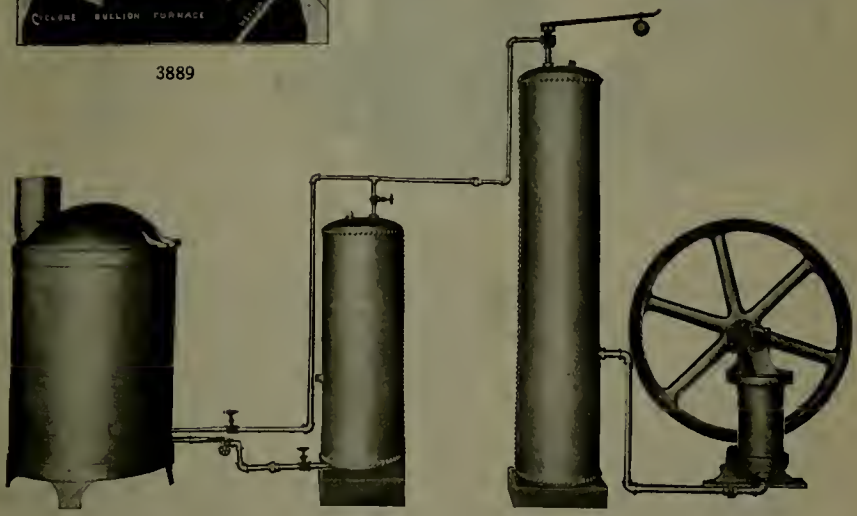
This furnace does not need a high-priced, delicately constructed burner, consuming fuel voraciously; a simple and strong burner like our Challenge burner is all that is required.



3889



3886



Outfit for 3889

3886. **Furnaces—Bullion—Cyclone Gold Furnace No. 8.**—For melting gold or bullion; superior to any gasoline-fired bullion furnace on the market. It will hold a No. 8 or No. 10 black lead crucible, and can be used with an Advance or Challenge burner. The firing on a tangent to the inner circle of the fire-box injects the flame below the crucible, thus spreading the heat all around and preventing unequal distribution, which is very destructive to the crucible. Price, net....$8 50

3887. **Furnaces—Bullion—Cyclone Gold Furnace No. 14.**—Similar to preceding, but taking a crucible No. 12, 14 or 16 of black lead. Price, net$12 00

3888. **Furnaces—Bullion—Cyclone No. 25.**—Similar to above, but taking a crucible No. 20, 25 or 30, requiring a good burner like our Challenge burner. Price net **$18 00**

3889. **Furnaces—Bullion—Cyclone No. 40.**—Similar to preceding, but taking a crucible No. 40. This furnace is especially designed for bullion producers and cyanide operators who handle a large quantity of bullion or slimes. It requires a large burner like our Advance Distillate Burner (see No. 2507), for distillate or crude oil, in which the fuel is atomized with either steam or air in connection with our air compressors. The linings are of the finest, especially molded fire-brick, encased in heavy steel jacket, with a cast-iron base and dome-shape cast-iron cover. Price, net **$25 00**

3890. **Furnaces—Bullion—Cyclone No. 100.**—Similar to preceding, but taking a No. 80 or 100 black lead crucible. Price, net **$40 00**



3892

3891. **Furnaces—Bullion—Cyclone No. 125.**—Identical in construction with preceding, but taking a No. 125 or 150 black lead crucible. Price, net **$50 00**

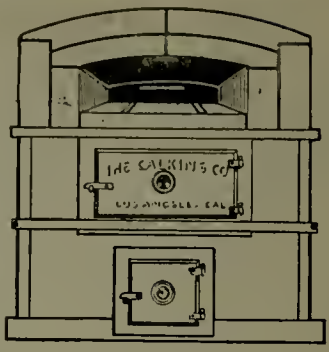
No.	Diameter outside, inches	Height over all, inches	Diameter inside, inches	Height inside, inches	Weight, lbs.
8	10½	15	7	9	60
14	15	17	9	12	80
25	18	21	11	14	...
50	20	26	13½	16	290
100	24	36	16½	22	600
125	25½	36	18	22	650

On page 149 we illustrate a complete outfit for working the large size Bullion Furnaces. It consists of the furnace, distillate burner, air compressor, air receiver tank and distillate tank. The air receiver tank should be of 30 gallons capacity, and the distillate tank should hold 18 gallons. The complete outfit, exclusive of furnace, would be **$107 50**

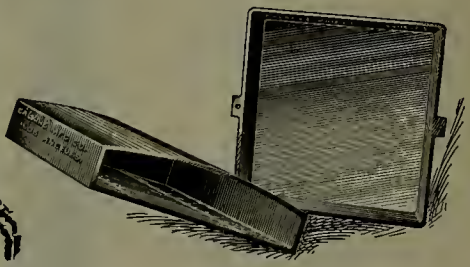
3892. **Furnaces—Bullion—Cyclone, No. 40.**—This is a modification of Furnace No. 3889, constructed so that it will work with two gasoline burners, without the necessity of an outfit as described above; in other respects it is similar to Furnace No. 3889. Price, net **$20 00**



3896



3901



3898

3896. Furnaces—Calkins' Muffle for Slimes, No. 1.—Designed especially for cyanide plants for drying zinc gold precipitates preparatory to melting. A most necessary adjunct to any properly equipped cyanide plant. The muffle holds a large pan that allows the slimes to spread out in a layer and dry quickly, and be roasted thoroughly in a short time. Has a cylindrical combustion chamber, and is designed for use with our Advance Distillate Burner, the oil to be atomized with compressed air or steam. The muffle is of cast iron, enclosed in especially molded fire-brick, the brickwork enclosing the whole being set on a heavy cast-iron plate, which rests on the combustion chamber. The latter is built of the best fire-brick, with a heavy steel jacket. The firing is on the tangent, with cyclonic action to the flame. The combustion chamber is 16 inches in diameter; the muffle is 30 inches wide, 31½ inches long and 6¼ inches high, measured internally, and the total height of furnace is 54 inches, the total weight being 1,400 pounds. It can be shipped in sections, convenient to handle.

Price, net $85 00

3897. Extra muffles. Each 20 00

3898. Cast-iron pan for muffles, 29 x 29 x 4 inches, outside. Each 10 00

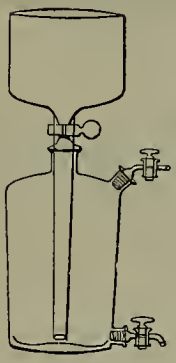
3901. Furnaces—Muffle for Slimes, No. 2.—Designed for cyanide operators who desire to erect their own drying furnaces, to be heated by wood fire. We supply the muffle, fire-brick to enclose it, cast-iron plate for resting the brickwork, ash pit and fire-box doors, grate bars, corner irons, stay rods and sheet-iron bonnet, to

which a smoke-stack can be attached. The other parts of the furnace can be built of brick or adobe.

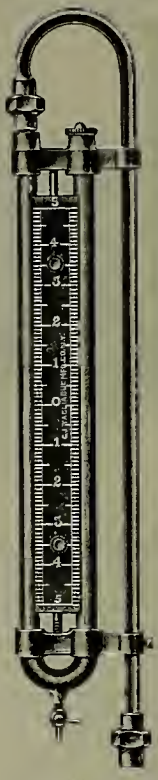
3902.	Cast-iron muffle	$20 00
3903.	Cast-iron plate and fire-brick	25 00
3904.	Fire box door	5 50
3905.	Ash pit door	4 50
3906.	Grate bars, corner irons and tie rods	15 00
3907.	Bonnet	5 00

We will furnish with these goods blue prints of full working drawings for the construction of these furnaces.

See catalogue of the Calkins specialties for full description.



3921



3955



3936-7

3916. **Furnaces—Electric—Gould's Universal Electric Muffle Furnace.**

An electric furnace that is designed for the use of chemists. Of convenient shape, readily accessible, economical of operation and easily regulated for high or low temperatures.

The muffle has a floor area of 7 inches by 4 inches, with a height at the center of 3½ inches. The muffle can conveniently hold two 100 cc. dishes and two 50 cc. crucibles at one time. The maximum temperature attainable is between 2,500 and 2,700 F., while the furnace is so constructed as to give eight other

temperatures from 500 F. up to the maximum. The current required is 18 to 20 amperes under an E. M. F. of 125 volts to bring the muffle to its maximum temperature, after which the current is decreased. Cost of operating under ordinary charge for power is from 10 to 15 cents an hour.

For the ignition of organic materials and for the fusion of refractory minerals or ignition of precipitates, this furnace meets a long-felt want in the chemical laboratory. With proper care the furnace will last for years, but can not be guaranteed against harsh treatment or the liability of short circuit from faulty electric supply.

The furnace is made only to order and for the one voltage (125). Terminals can be placed above or below the drum. Full directions and cautions for operating accompany each furnace. Price, net $125 00

3921. **Gas Holders—Berzelius'.**—Of glass, with 3 stopcocks.

Capacity, gallons	½	1	2
Each	$8.00	9.00	13.00

3936. **Gauges—Micrometer.**—For measuring, down to 1/100 millimeter.
Each $4 50

3937. **Gauges—Micrometer.**—Indicating 1/1000 inch. Each 4 00

Gauges—Wire.—American Standard, B. & S.

3941. 0 to 36. Each $2 50

3942. 5 to 36. Each 2 00

3952. **Gauges—Pressure.**—For steam, air, gas or water; with non-corrosive movements; silvered brass dial.

Diameter, inches	2½	3½	4½
Each	$3.00	3.00	3.50

3955. **Gauges — Pressure — Manometers.** — Of substantial construction; provided with couplings, so that the glass tube can be detached from metal goose neck; this has suitable connections for attaching to gas mains, stacks, etc. Scales are of box wood and adjustable; graduated to 1/10 inch or 1/10 ounce per square inch, millimeters or in any desired measure.

Length, inches	4	6	8	10	12	14
Each	$5.00	6.50	8.00	10.00	12.00	15.00

3961. **Gauge Glasses.**—Of best Scotch glass, for use in gauging the height of water in boilers or cisterns.

Length, inches	10	11	12	14	15	16
½ or ⅝-inch diameter. Per doz.	$3.00	3.24	3.60	4.20	4.44	4.80
¾-inch diameter. Per doz.	3.60	3.96	4.32	5.16	5.52	5.88
Length, inches	18	20	22	24	30	36
½ or ⅝-inch diameter. Per doz.	$5.40	6.00	6.60	7.20	9.00	10.80
¾-inch diameter. Per doz.	6.60	7.44	8.16	8.88	11.16	13.44

Glass Beads.—Used in tubes for absorption of gases.

3966. Solid, 2 to 3 mm. diameter. Per pound $1 20

3967. Hollow, 5 to 7 mm. diameter. Per pound 1 00

3976. **Glass Cutters.**—Cut glass tubing in perfect circle, the tube being held in a parallel position. Will cut glass in any length not over 10 inches; the cutting wheel can be replaced at any time. Each $1 50

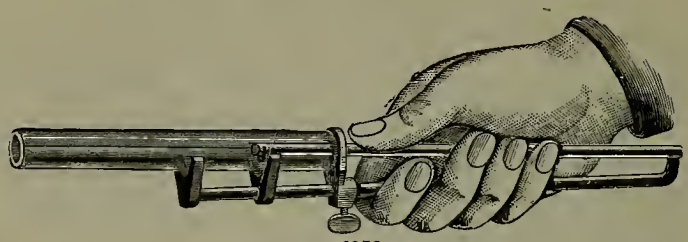
3978. **Glass Cutters.**—For flat glass, with diamond. Each 3 00

3979. **Glass Cutters.**—Steel wheel, ordinary form. Each 25

3986. **Glass Plates.**—Of blue cobalt glass, for detecting potassium flame; 3x3 inches. Each $0 15

3988. **Glass Plates.**—Of white glass, rough on one side, for covering jars.

Size, inches square	3	4	5	6	8
Each	$0.05	.07	.10	.15	.20



3976

3989. **Glass Plates.**—Of heavy French plate, ground on one side.

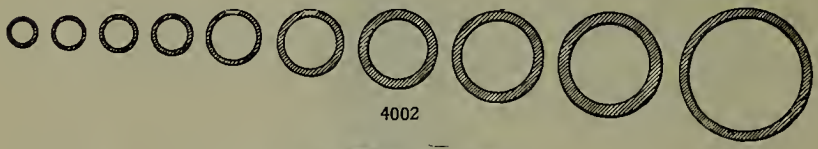
Size, inches square	3	4	5	6	8
Each	$0.15	.20	.25	.30	.35

3996. **Glass Rods.**—Of best German glass, free from lead; in diameter ⅛ to ½ inch. Per pound $0 50

3997. **Glass Rods.**—Of best German glass, cut into short lengths, with rounded ends, for stirring. Per pound $0 75



4001



4002



4027

4001-2. **Glass Tubing.**—Free from lead, soft and especially adapted to glass blowing and bending and connections; light and heavy.

Outside diameter from ⅛ to ¾ inch. Per pound $0 60

Outside diameter from ⅞ to 2 inches. Per pound 75

4003. **Glass Tubing—Capillary.** Per pound 1 00

4004. **Glass Tubing—Barometer.**—From 7 to 10 mm. outside diameter. Per pound 75

4006. **Glass Tubing—Pressure.**—For mercury pumps, well annealed. Per pound. 1 00

4007. **Glass Tubing—Thermometer.** Per pound 1 00

4010. **Glass Tubing—Combustion.**—Of hardest potash Bohemian glass. Per pound 1 00

4011. **Glass Tubing—Combustion.**—Of resistance glass. Per pound 1 00

4016. **Glass Wool.** Per ounce 60

4026. **Gloves—Asbestos Mittens.** Per pair 2 50

4027 **Gloves—Asbestos.**—With separate thumb and forefinger. Per pair..... 3 00

4031. **Gloves—Buckskin.**—Half gauntlet. Per pair 1 25

4032. **Gloves—Buckskin.**—Full gauntlet. Per pair 1 75

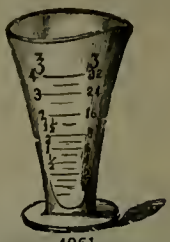
4034. **Gloves—Duck.**—Padded, melters' mittens. Per pair 1 00



4037



4051



4061

4035. **Gloves—Rubber.**—Half gauntlet mittens. Per pair $1 50
4036. **Gloves—Rubber.**—Half gauntlet, white or black. Per pair 2 75
4037. **Gloves—Rubber.**—Full gauntlet, white or black. Per pair 3 00

Gloves—Rubber.—Extra long, reaching to the elbow, for acid and cyanide work.

Size	13	14	15
4040. Elbow length. Per pair	$3.50	3.75	4.00
4041. Reaching above elbow. Per pair	5.50	5.75	6.00

4051. **Goggles.**—For protecting the eyes at the fire, or for traveling over snow and dust; colored glass. Per pair $0 25
4053. **Goggles.**—Of celluloid. Per pair 25
4061. **Graduates.**—Glass, cone shape, guaranteed accurate.

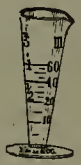
Capacity	1 dr.	2 dr.	1 oz.	2 oz.		
Each	$0 20	.25	.25	.30		
Capacity, ounces	4	6	8	12	16	32
Each	$0.35	.40	.50	.60	.75	1.25

4063. **Graduates.**—Glass, cone shape, metric measure.

Capacity, cc.	5	10	15	30	60	120	250	500	1000
Each	$0.25	.25	.30	.40	.50	.65	.90	1.10	1.50



4066



4071



4082

4064. **Graduates.**—Glass, cone shape, with double graduations; apothecary and metric measures.

Capacity	1 drachm	2 drachms
Capacity, cc.	5	10
Each	$0.30	.30

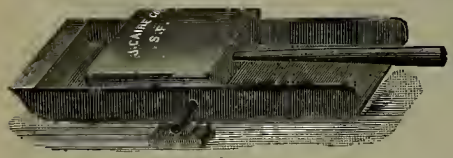
Capacity, ounces	½	1	2	4	8	16	32
Capacity, cc.	15	30	60	120	250	500	1000
Each	$0.30	.30	.40	.60	1.00	1.25	2.00

4066. **Graduates.**—Beaker shape; accurately graduated.

Capacity, ounces	½	1	2	4	8	16	32
Each	$0.20	.20	.25	.35	.50	.75	1.25

4067. **Graduates.**—Beaker shape, metric measures.

Capacity, cc.	5	10	15	30	60	120	250	500	1000
Each	$0.20	.20	.25	.30	.35	.45	.70	1.00	1.35



4093



4096

4068. **Graduates.**—Beaker shape, with both graduations

Capacity, ounces	½	1	2	4	8	16	32
Capacity, cc.	15	30	60	120	250	500	1000
Each	$0.30	.30	.40	.60	1.00	1.25	2.00

4071. **Graduates.**—Glass, divided into minims, cone shape.
1 drachm = 60 minims. Each $0 25
2 drachms = 120 minims. Each 30

4072. **Graduates.**—Glass, divided into minims, cylinder form, on heavy foot.
1 drachm = 60 minims. Each $0 25
2 drachms = 120 minims. Each 30

4074. **Graduates—Glass.**—T. & T. measure; for tea and tablespoonfuls; tumbler shape.
1 tablespoon to 1 teaspoon. Each $0 30
2 " " 1 " " 35
4 " " 1 " " 40

4081. **Graduates—Porcelain.**—Graduated on the inside.

Capacity, ounces	1	2	4	8	16	32
Each	$0.25	.30	.35	.65	1.10	1.65

4082. **Graduates—Porcelain.**—Graduated in metric measures.

Capacity, cc.	50	100	250	500	1000
Each	$0.30	.35	.65	1.10	1.65

4091. **Grinding Plates.**—Circular form, 21 inches diameter, 1 inch deep, turned level for grinding fine. Weight, 96 pounds (including muller, 3¾ inches diameter). Each $9 00

Grinding Plates.—Rectangular form, with flat bottom, raised sides, on trunnions and bearings to discharge.

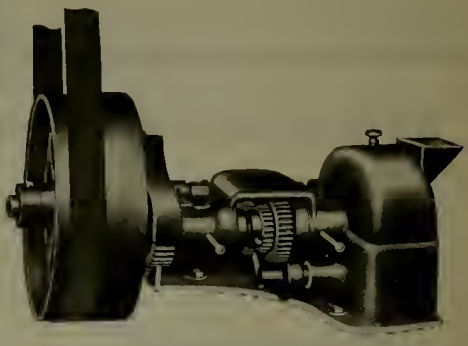
4093. Size 7 x 28; weight of plate, 50 pounds. Each $7 00
4094. " 15 x 28; " " " 90 " " 9 00

Grinding Plates.—Bucking boards of ¾ cast-iron; upper surface planed, with a ¾ flange on either side; curved-face muller complete with handle.

4096. Size, 12 x 18; muller, 20 pounds. Each $ 7 00
4097. " 18 x 20; " 20 " " 10 50
4098. " 20 x 24; " 20 " " 13 00
4099. " 20 x 36; " 30 " " 18 50



4111



4116

4111. **Grinders—Advance Disc Sample Grinder.**—This machine is intended for the use of those assayers who realize the importance of a properly ground sample. Easily operated by hand, easily cleaned, as the rocker arm which carries the rotating disc swings clear over out of the way of the opposing disc, thus giving full access to the faces of both discs, and to all parts of the machine. The rotary disc has a gyrating as well as a rotary motion, which adds to the grinding capacity of the machine and prevents the grinding surface of the discs from becoming concentrically grooved. The discs are of gray chilled cast-iron and very hard. The thrust of disc shaft is taken on ball bearings, and the journals are bronze bushed. The grinder can be instantaneously adjusted for grinding to any degree of fineness; the adjusting is effected by means of lock-nuts on the end of the bar by which the rocker arm, which carries the rotary disc, is pivoted to the main frame of the machine. An ordinary 8-oz. sample can be ground to a fineness of 80 mesh in one minute. The diameter of the discs is 6 inches; the diameter of fly-wheel is 18 inches. Weight, 175 pounds. Net price.....$50 00

4112. Extra stationary discs 1 50

4113. Extra rotating discs 1 50

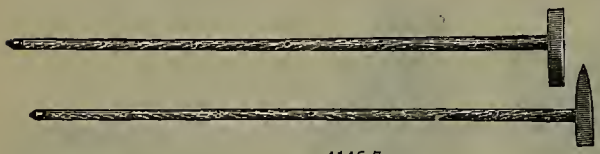
4116. **Grinders—Advance Disc Sample Grinder—Power.**—This machine is identical in design with the smaller "Advance" Disc Sample Grinder. Gears all cut; thrust of disc shaft taken on ball bearings; thrust of rocker arm also taken on ball bearings. One and a half horse-power ample to operate this machine. The operation of this machine is fully explained in the description of "Advance" Disc Sample Grinder, small size, which has discs 6 inches in diameter. The diameter of the discs is 9 inches; tight and loose pulleys; weight, 375 pounds. Net price$100 00

4117. Extra discs. Each 2 50
See catalogue of the Calkins' Specialties for full description.

4126. **Grindstones.**—In round iron boxes; fixtures complete.

Diameter, inches	6	8	10	12
Thickness, inches	1¼	1¼	1¼	1½
Each	$1.25	1.75	2.00	2.50

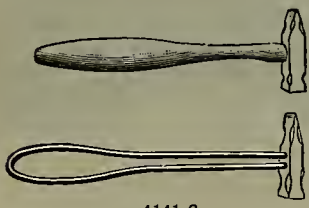
4127. **Grindstones.**—Large sizes. Per pound$0 05



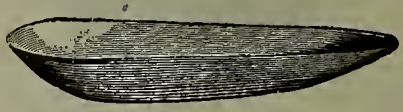
4146-7



4151-3



4141-2



4181

Hammers—Blowpipe.—For light laboratory work.

4141. Plattner's, with wood handle. Each $0 60

4142. Colton's, with wire handle 75

4143. Freiberg model, octagonal pein, wood handle 1 00

4146-7. **Hammers—Geologists'.**—Chisel edge and walking stick; a spike at the lower end to assist in climbing. Weight, 2 pounds, and is capable of giving blows. Handle graduated for measuring. Wedge parallel to handle (4146), or at right angles to handle (4147). Each $2 50

4148. **Hammers—Geologists'.**—Of polished cast steel, flat face, pick point.

No.	1	2	3
Weight, ounces	25	30	38
Each	$1.00	1.25	1.50

4151. **Hammers—Mineralogists'.**—Flat face, wedge parallel to the handle. Each. $1 50

4153. **Hammers—Assayers'.**—Flat face, wedge at right angles to handle; of best steel.

No.	40	41	42	43	44
Weight of head, ounces	20	14	12	7	4½
Each	$0 75	.70	.60	.45	.35

4156. **Hammers—Machinists'.**—With ball pein.

No.	70	71	72	¼ 73
Weight of head, pounds	3	1⅞	1½	1¼
Each	$1.35	1.15	1.00	.90
No.	74	75	76	
Weight of head, ounces	16	12	10	
Each	$0.85	.80	.75	

4158. **Hammers—Jewelers'.**—Light. for small work. Each $0 50

4161. **Handles—For Files.**—Per dozen 50

4162. **Handles—For Assayers' and Geologists' Hammers.**—Each 15

4163. **Handles—For Jewelers' Hammers.**—Each 10

4171. **Holders.**—Of steel for platinum wire and foil. Each $0 30

4181. **Horns—For Miners.**—Made of cow's horn, well finished.

Length, inches	6½	7¼	8	9
Each	$0.65	.75	.85	1.00



4196



4223



4214

4183. **Horns—For Miners.**—Of copper, same form as preceding.

Length, inches	8	9
Each	$0.75	1.00

4184. **Horns—For Miners.**—Of hard rubber, 9½ inches long; the black color enabling one to detect the smallest particle of gold. Each $0 75

4185. **Horns—For Miners.**—Of Russia iron, 1849 style. Each $0 50

4196. **Hour Glasses, or Sand Glasses.**

Minutes	3	5	10	15	30
Each	$0.45	.60	.70	.80	1.00

Hydrometers—Acid.

4207.	Beaumé—Sulphuric;	no	thermometer;	10	inches	long;	0-70 x 1.	Each	$0 50
4208.	" Nitric;	"	"	10	"	"	0-42 x 1.	"	50
4209.	" Hydrochloric	"	"	10	"	"	0-35 x 1.	"	50
4211.	" Battery;	"	"	5½	"	"	0-40 x 1.	"	50
4212.	" "	"	"	5½	"	"	40-60 x 1.	"	50
4213.	" General;	"	"	10	"	"	10-20 x 1/10.	"	1 00
4214.	" "	"	"	10	"	"	20-30 x 1/10.	"	1 00
4215.	" "	"	"	10	"	"	30-40 x 1/10.	"	1 00
4216.	" "	"	"	10	"	"	40-50 x 1/10.	"	1 00
4217.	" "	"	"	10	"	"	47-52 x 1/10.	"	1 00
4218.	" "	"	"	10	"	"	50-60 x 1/10.	"	1 00
4219.	" "	"	"	10	"	"	60-70 x 1/10.	"	1 00
4221.	Sp. Gravity Storage Battery		"	6	"	"	1150 to 1350.	"	75

4223. Beaumé 10 to 40 and Sp. gravity 1100 to 1300, with thermometer; with cylinder and rubber bulb. In a wooden box. Each 3 00



4231



4256

Hydrometers—Alcohol or Spirit.

4226. Gay-Lussac, brandy, no thermometer; 9 inches long, 0 to 100. Each....$0 75
4228. Cartier, brandy, no thermometer; 6 inches long, 10 to 40. Each.... 60
4230. Proof & Tralle, spirits, no " 11 inches long, 100 to 100. Each.... 50
4231. Proof & Tralle, spirits, thermometer; 18 inches long, 100 to 100. Each.... 1 50
4232. Gay-Lussac, brandy, no thermometer; 10 inches long, 0 to 100, of metal .. 6 00

Hydrometers—Alkali.

4242. Beaumé, lye and soap, no thermometer; 10 inches long, 0-50 x 1. Each.....$0 50

Hydrometers—Ammonia.

4244. Beaumé, light, no thermometer; 10 inches long, 10 to 40 x 1. Each.....$0 50

Hydrometers—Bark.

4246. Special, no thermometer; 10 inches long, 0-60 x 1. Each$0 50
4247. Special, no thermometer; 10 inches long, 0-80 x 1. Each 1 25

Hydrometers—Beer & Wort.

4251. Kaiser's, beer, thermometer; 10 inches long, 0-25 x ¼. Each.....$1 50
4252. Balling's, beer, thermometer; 18 inches long, 0-22 x 1/10. Each..... 1 50
4253. Balling's, beer, no thermometer; 12 inches long, 0-22 x 1/10. Each..... 75

Hydrometers—Coal Oil.—Ordinary grade.

4255. Beaumé, 10 inches long, with thermometer, 10 to 100 x 1. Each.....$1 50
4256. " 10 " " no " 10 to 100 x 1. " 50
4257. " 10 " " " " 10 to 30 x ½. " 50
4258. " 10 " " " " 10 to 50 x ½. " 50

4261. Hydometers—Coal Oil.—Medium grade; without thermometer, 10 inches long. Each $1 00

a—10 to 21 x 1/10.
b—19 to 31 x 1/10.
c—29 to 41 x 1/10.
d—39 to 51 x 1/10.
e—49 to 61 x 1/10.
f—59 to 71 x 1/10.
g—69 to 81 x 1/10.
h—79 to 91 x 1/10.

4268. Hydrometers—Coal Oil.—Medium grade; with thermometer; 16 inches long. Each $2 00

a—10 to 21 x 1/10.
b—19 to 31 x 1/10.
c—29 to 41 x 1/10.
d—39 to 51 x 1/10.
e—49 to 61 x 1/10.
f—59 to 71 x 1/10.
g—69 to 81 x 1/10.
h—79 to 91 x 1/10.

Hydrometers—Coal Oil.—Standard grade.
Made by C. J. Tagliabue Mfg. Co. in accordance with all the requirements of the U. S. Petroleum Association.

4278. Without thermometer; 15 inches long, 10 to 100 x 1 $2 50
4279. With thermometer; 15 inches long, 10 to 100 x 1 3 50
4280. With thermometer; 6 inches long. Each 2 50

a—10 to 30 x ½.
b—30 to 50 x ½.
c—50 to 70 x ½.
d—70 to 90 x ½.

4284. Hydrometers.—Tagliabue Standard.
16 inches long, without thermometers. Each $2 75

a—10 to 21 x 1/10.
b—19 to 31 x 1/10.
c—29 to 41 x 1/10.
d—39 to 51 x 1/10.
e—49 to 61 x 1/10.
f—59 to 71 x 1/10.
g—69 to 81 x 1/10.
h—79 to 91 x 1/10.

4285. Hydrometers.—Tagliabue Standard.
16 inches long, with thermometer. Each $3 25

a—10 to 21 x 1/10.
b—19 to 31 x 1/10.
c—29 to 41 x 1/10.
d—39 to 51 x 1/10.
e—49 to 61 x 1/10.
f—59 to 71 x 1/10.
g—69 to 81 x 1/10.
h—79 to 91 x 1/10.

4286. Hydrometers.—Tagliabue Standard.
15 inches long, with thermometer. Each $3 00

a—10 to 30 x ¼.
b—30 to 50 x ¼.
c—50 to 70 x ¼.
d—70 to 90 x ¼.

4287. Hydrometers.—Tagliabue Standard, in sets of 3, ranging from 10 to 70 degrees divided into ½ degree, 6 inches long.
In case with 4-ounce jar. Per set $10.50

4289. Hydrometers—Coal Oil.
10 inches long, with the thermometer and the gravity readings on the upper stem. Each $2 00

a—10 to 40 x ½.
b—30 to 60 x ½.
c—50 to 90 x ½.
f—10 to 100 x 1.



4311

Hydrometers—Gasoline.

4291. Beaumé, light, no thermometer, 4 inches long, 60-80 x 1, metal case. Each..$0 75
4292. Beaumé, light, with thermometer, 6 inches long, 60-80 x 1, metal case. Each 1 50

Hydrometers—Milk (Lactometers). Each

4296. Ordinary—No thermometer, 10 in. long, 0-120 x 1$0 50
4297. Standard—No thermometer, 10 in. long, 0-120 x 1 (N. Y. Board of Health)... 1 25
4298. Standard—Thermometer, 10 in. long, 0-120 x 1 (N. Y. Board of Health)... 1 75
4301. Quevenne's—No thermometer, 10 in. long 75
4302. Quevenne's—Thermometer, 10 in. long 1 50

Hydrometers—Salt.

4306. Percentage—Pickling—No thermometer, 10 in. long, 0-100 x 1..... 50

Hydrometers—Sea Water.

4311. Percentage Salinometers—No thermometer, 10 in. long, 0-3/32..... 75
4312. Percentage Salinometers—No thermometer, 10 in. long, 0-3/32, gilt..... 9 00
These have three scales for temperatures of water—190, 200, 210 Fahr.

Hydrometers—Silver (Actinometers).

4316. Arbitrary—Photography—No thermometer, 6 in. long, 0-80 x 1..... 50

Hydrometers—Specific Gravity.

				Length	Each
4326.	Beaumé	10- 70, Sp. gravity,	1000- 700, No thermometer,	10 in., light	$0 75
4327.	"	10- 70, "	1000- 700, Thermometer,	10 in., light	1 50
4328.	"	0 -74, "	1000-2000, No thermometer,	10 in., heavy	75
4329.	"	0- 74, "	1000-2000, Thermometer,	10 in., "	1 50
4330.	"	0- 24, "	1000-1200, No thermometer,	10 in., "	75
4331.	"	24- 42, "	1200-1400, "	10 in., "	75
4332.	"	42- 54, "	1400-1600, "	10 in., "	75
4333.	"	54- 64, "	1600-1800, "	10 in., "	75
4334.	"	64- 74, "	1800-2000, "	10 in., "	75
4335.	"	0- 24, "	1000-1200, Thermometer,	10 in., "	1 50
4336.	"	24- 42, "	1200-1400, "	10 in., "	1 50
4337.	"	42- 54, "	1400-1600, "	10 in., "	1 50
4338.	"	54- 64, "	1600-1800, "	10 in., "	1 50
4339.	"	64- 74, "	1800-2000, "	10 in., "	1 50
4340.	"	70- 74, "	700-2000, No thermometer,	14 in., universal	1 50
4341.	"	70- 74, "	700-2000, Thermometer,	14 in., "	3 00

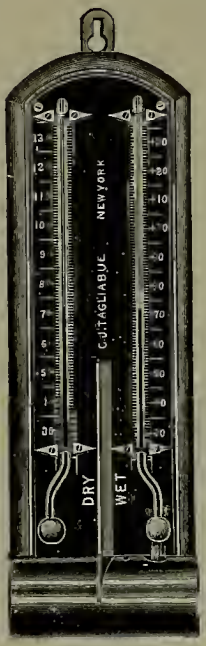
4342.	Twaddell's	0- 24,	No thermometer,	10 in., heavy	50
4343.	"	24- 48,	"	10 in., "	50
4344.	"	48- 72,	"	10 in., "	50
4345.	"	72-102,	"	10 in., "	50
4346.	"	102-134,	"	10 in., "	50
4347.	"	134-180,	"	10 in., "	50

In Twaddell's system, the indication of the hydrometer multiplied by five and added to 1000, gives the actual specific gravity.

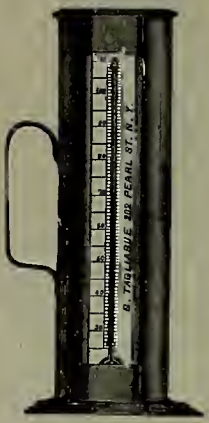
Hydrometers—Sugar and Syrup.

4361.	Beaumé—	No thermometer,	10 in. long,	0-50 x 1	Each	$0 50
4362.	"	Thermometer,	10 in. "	0-50 x 1	"	1 50
4363.	"	No thermometer,	9 in. "	0-50 x 1, metal	"	4 50
4364.	Balling	"	12 in. "	0-70 x 1	"	1 00
4365.	"	"	10 in. "	0-30 x ½	"	1 00
4366.	"	"	10 in. "	0-10 x 1/10	"	1 00
4367.	"	"	10 in. "	10-20 x 1/10	"	1 00
4368.	"	"	10 in. "	20-30 x 1/10	"	1 00
4369.	"	"	10 in. "	30-40 x 1/10	"	1 00
4370.	"	"	10 in. "	30-60 x 1/10	"	1 00
4371.	"	"	10 in. "	60-90 x 1/10	"	1 00
4372.	"	Thermometer,	18 in. "	0-70 x 1	"	2 00
4373.	"	"	10 in. "	0-30 x ½	"	2 00
4374.	"	"	10 in. "	0-30 x 1/10	"	2 00
4375.	"	"	10 in. "	0-10 x 1/10	"	2 00
4376.	"	"	10 in. "	10-20 x 1/10	"	2 00
4377.	"	"	10 in. "	20-30 x 1/10	"	2 00
4378.	"	"	10 in. "	30-40 x 1/10	"	2 00
4379.	"	"	10 in. "	30-60 x 1/10	"	2 00
4380.	"	No thermometer,	6½ in. "	0-10 x ⅕	"	1 00
4381.	"	"	6½ in. "	10-20 x ⅕	"	1 00
4382.	"	"	6½ in. "	20-30 x ⅕	"	1 00
4383.	"	"	6½ in. "	30-40 x ⅕	"	1 00
4391.	Brix	"	12 in. "	0-30 x ½	"	1 00
4392.	"	"	12 in. "	0-10 x 1/10	"	1 00
4393.	"	"	12 in. "	5-10 x 1/10	"	1 00
4394.	"	"	12 in. "	10-25 x 1/10	"	1 00
4395.	"	"	12 in. "	20-30 x 1/10	"	1 00
4396.	"	"	12 in. "	15-30 x 1/10	"	1 00
4397.	"	"	12 in. "	10-20 x 1/10	"	1 00
4398.	"	"	12 in. "	0-30 x 1/10	"	1 00
4399.	"	"	12 in. "	30-60 x 1/10	"	1 00
4400.	"	"	12 in. "	60-70 x 1/10	"	1 00
4401.	"	"	12 in. "	60-90 x 1/10	"	1 00
4402.	"	"	12 in. "	60-90 x ½	"	1 00


4441

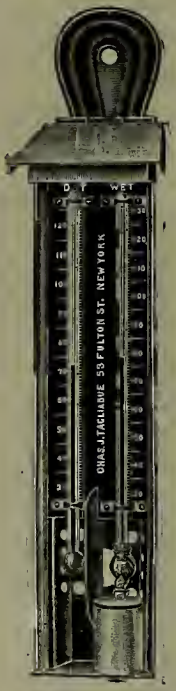


4453



4431


4431



4452

Hydrometers—Turpentine.

4416. Beaumé—No thermometer, 10 in. long, 10-50 x 1. Each $0 50

4421. **Hydrometers—Vinegar.** Each 50

Hydrometers—Whale Oil.

4426. Beaumé—No thermometer, 10 in. long, 10-80 x 1. Each 50

Hydrometers—Urine.—(See Apparatus, Urinometers.)

Hydrometers—Internal Revenue Standard.—This is a set adopted by the Internal Revenue and Custom House for the inspection of spirits. It consists of five hydrometer stems, ranging as follows: No. 1, from 0 to 100; No. 2, from 80 to 120; No. 3, from 100 to 140; No. 4, from 130 to 170; No. 5, from 160 to 200. There is a copper cup with an ivory standard thermometer, and a manual of correction for temperature. The whole is packed in a chamois-lined walnut case. These instruments are corrected by the Internal Revenue officials at Washington, and are absolutely correct.

4431. The set, complete, as described. $26 00

4432. Extra stems. Each 3 00

4433. Copper cup, with ivory thermometer. Each 5 00

4434. Thermometer, alone. Each 3 00

4435. Manual of corrections. Each 2 25

4441. **Hydrometers—Nicholson's.**—Of brass, with glass jar on foot. Each..... 4 50



4476



4479

4442. **Hydrometers—Nicholson's.**—All glass. Each $2 75
Hydrometer Jars.—(See Cylinder, No. 3131.)

4451. **Hygrometers—Daniell's.**—For determining the amount of moisture in the atmosphere; very useful for vineyards, orchards, etc. With gold ring burned in; mounted on polished stand. Each $6 00

4452. **Hygrometers—Mason's.**—Fine brass oxidized scales, silver deposited numbers and degrees, heavy polished case, metal cistern. Each $6 00

4453. **Hygrometers—Mason's.**—On polished oak back, large metal cistern, similar to preceding in finish. Each $7 00

4454. **Hygrometers—Mason's.**—Wet and dry bulb, with metal cistern. On polished wood frame, with the thermometer scales raised from the frame with insulating straps. Each $5 00

4456. **Hygrometers—August's Sling Psychrometer.**—With wet and dry bulb thermometer on polished brass stand. Each $7 50

4466. **Ignition Tubes.**—Of hard, heavy Bohemian glass.

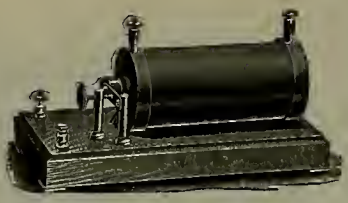
Length, inches	4	5	6	8	10
Per dozen	$0.65	.85	1.00	1.85	3.00

4467. **Ignition Tubes.**—Of hard glass, with bulb.

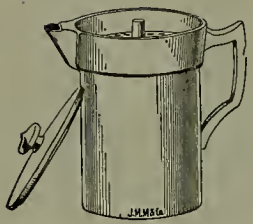
Length, inches	4	5	6	8
Per dozen	$1.80	2.20	2.40	3.60

Incubators—Bacteriological.—Double walls; for water only; of polished copper on sheet-iron base, with opening on side for the burner.

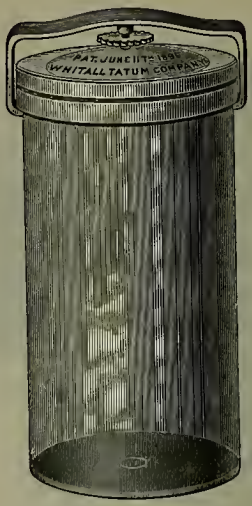
4476. Inside dimensions: Height, 10 in.; width, 8 in.; depth, 8 in. Each..... $40 00
4477. Inside dimensions: Height, 12 in.; width, 10 in.; depth, 10 in. Each..... 50 00



4486



4496



4511

Incubators—Bacteriological.—With three walls, having both air and water space. Of polished copper, the outer surface covered with insulating material to insure an even temperature. On sheet-iron base, 10 inches high, with a door provided with mica observation glass.

4479. Inside dimensions: Height, 9 in.; width, 7 in.; depth, 7 in. Each.....$40 00

4480. " " " 12 " " 9 " " 9 " " 55 00

4481. " " " 14 " " 12 " " 10 " " 70 00

4486. **Induction Coils—Ruhmkorff's.**—With automatic brake and on polished mahogany base.

Length of spark, inches....	¼	⅜	½	¾	1	1½	2
Each	$4.50	6.75	9.00	13.50	18.00	27.00	36.00

4496. **Infusion Pots.**—Of porcelain, with strainers.

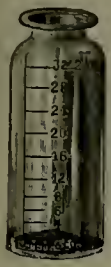
Capacity	1 pt.	1 qt.
Each	$1.75	2.25

4511. **Jars—Anatomical.**—For museums and collections; the top plate has a hook for suspending specimens, and is made air tight by a rubber washer. A metallic clamp fastens down the lid. The mouth is of the width of the body of the jar.

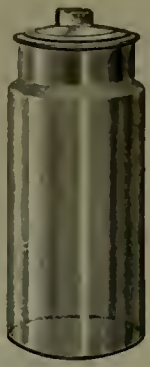
Inside diameter, inches	2¼	2¼	3½	3½	5⅝
Height, without lid	4	6	6	8	8
Capacity, pints	½	¾	1¾	2½	6
Each	$0.70	.75	1.05	1.15	2.00

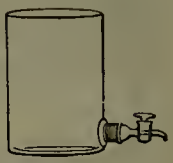
Inside diameter, ins..	5⅛	6¼	6¼	7⅝	7⅝	7⅝	7⅝	7⅝
Height, without lid..	12	8	12	8	12	15	18	24
Capacity, gallons ...	1	1	1½	1½	2¼	2¾	3½	4½
Each	$2.40	2.60	2.90	4.00	4.55	5.00	5.35	6.15


4516


4521


4526


4536


4541

Jars—Battery.—(See Batteries, No. 1916.)

4516. Jars—Chloride of Calcium.—For drying gases; on foot; tubulated near bottom, narrow or wide neck.

Height, inches	8½	10½	12	17
Diameter, inches	1	1½	2	2½
Each	$0.60	.80	1.00	1.25

4521. Jars—Percolating.—Of glass, graduated in ounces, or in the metric system.

Capacity, gallons (in ounces)	¼	½	1	2
Each	$1.00	1.50	2.25	3.50
Capacity, litres (in cc.)	1	2	4	8
Each	$1.00	1.50	2.25	3.50

4526. Jars—Precipitating.—Of glass, cone shape, with lip.

Capacity, ounces	4	8	16	32	64
Each	$0.20	.25	.35	.50	.75
Capacity, gallons			1	1½	2
Each			$1.10	1.50	2.00

4531. Jars—Sample (Ointment).—Of flint glass; nickel-plated screw top.

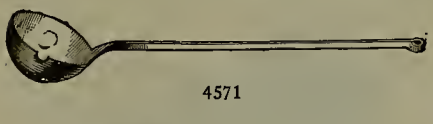
Capacity, ounces	½	1	2	4	8
Per dozen	$0.50	.75	.90	1.00	1.50

4536. Jars—Specimen.—Of clear flint glass, with ground stoppers. The mouth is nearly as wide as the body of the jar. In ordering, give diameter of body and height to shoulder.

Diameter of body, inches	1½	1½	2	2	2½	2½	3
Height to shoulder, inches	2	3	3¾	5	3½	5	4
Capacity, ounces	1½	2½	5	6	8	11	14
Each	$0.22	.23	.27	.30	.32	.35	.40
Diameter of body, inches	3	3¾	4½	4½	6	6	
Height to shoulder, inches	6	6	5	8	7	10	
Capacity, ounces	20	29	38	62	98	140	
Each	$0 45	.58	.80	.95	1.30	1.70	

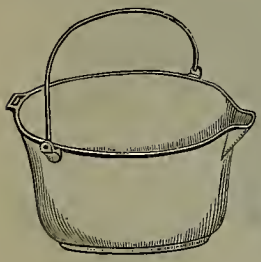
4541. Jars—Solution.—For photo-engravers, with tubulure and glass stopcock at bottom.

Capacity, quarts	1	2	3	4
Each	$1.25	1.50	2.00	2.50

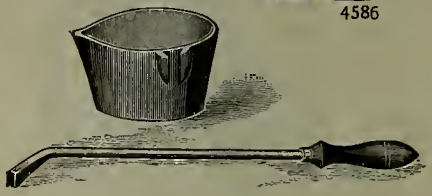

4571


4582


4586


4551


4581


4574

4551. Kettles.—For amalgam and quicksilver; of iron, porcelain lined, with bale and lip.

Diameter, inches	7⅜	7¾	8	9
Capacity, quarts	2	2½	3	4
Each	$0.50	.60	.67	.75
Diameter, inches	10	11	12	12½
Capacity, quarts	6	8	10	12
Each	$1.00	1.20	1.35	1.50

4561. Labels—Chemicals.—In series, for the most important chemicals.
Per series $0 50

4562. Labels—Blank.—Gummed on back; for ore samples, etc. In boxes of 100.
Per box from $0 08 to $0 25

Lactometers.—(See Apparatus, also Hydrometers.)

4571. Ladles—Melting.—Of wrought iron, with lip.

Diameter, inches	2½	3	3½	4	4½	5	6
Each	$0.30	.35	.40	.45	.50	.60	.70

4573. Ladles—Iron.—Monroe's; half covered, for skimming. Each..... $0 35
(See also Dippers.)

4574. Ladles.—Of cast iron, with detachable handle, which can be taken off and replaced in an instant.

Size of bowl	4 x 2⅜	4⅜ x 2¾	6½ x 2¾
Each	$0.30	.40	.45

4581—4582. Lamps—Alcohol.—Of glass, with ground cap, wick and wick-holder, globe shape (No. 4581), or cylindrical (No. 4582).

Capacity, ounces	2	4	8
Each	$0.25	.30	.40

4583. Lamps—Alcohol.—Of glass, like No. 4582, but with side tubulure.

Capacity, ounces	2	4	8
Each	$0.40	.45	.60

4586. Lamps—Alcohol.—Of glass; Simplicity lamp. Having nine facets on the font, it may be placed in any position required.

Capacity, ounces	2	4	4
Burner, inch	3/16	¼	½
Each	$0.60	.75	.85



4587



4590



4591



4592



4593



4601

4587. Lamps—Alcohol.—Of glass, spherical shape; mounted on nickel-plated cup, with universal movement for downward flame in blowpipe work.

Capacity, ounces	2	4	8
Each	$1.00	1.25	1.50

4588. Lamps—Alcohol.—Of glass, similar to No. 4581, but with metal cap.

Capacity, ounces	2	4	8
Each	$0.25	.30	.40

4590. Lamps—Alcohol.—Of brass, with screw top.

Capacity, ounces	2	4	8
Each	$0.40	.50	.60

4591. Lamps—Alcohol.—Of brass, with screw top and ratchet burner.

Capacity, ounces	4	7
Each	$0.50	.60

4592. Lamps—Rechaud Lang.—For rapid heating by alcohol, by its peculiar construction giving a steady blast, which enables it to heat water very rapidly.

Size	Small	Medium	Large
Each	$1.00	1.25	1.50

4593. Lamps—Berzelius'.—Of brass, with argand burner, for alcohol or kerosene, and adjustable burner. Each $4 00

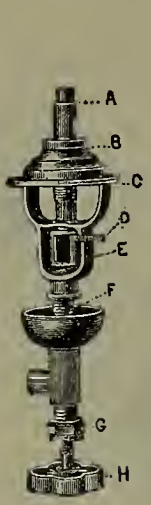
4594. Lamps—Rose's.—Of glass, with sliding rod, chimney triangle, and two brass rings; on mahogany base. Each $6 00

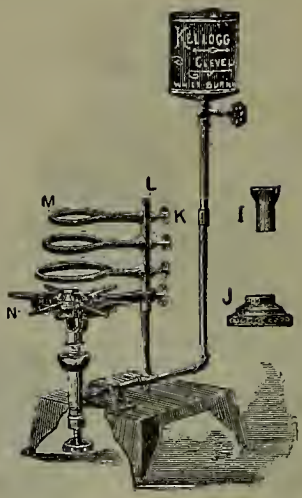
Lamps—Dangler's Laboratory.—For gasoline. This lamp gives a most intense heat; the burner can be regulated at will, and the pressure is regulated by rubber bulb.

4601. With iron tank. Each $5 00

4602. With copper tank. Each 6 00

4604. Extra burners. Each 2 00





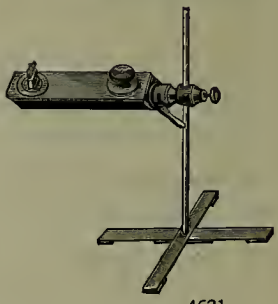
4606



4613



4614



4621

Lamps—Kellogg's.—For gasoline. Indispensable where a Bunsen burner is needed and no gas available. It gives as much heat as several burners, and is safer than an alcohol burner; gives a steady, odorless flame, consuming all the carbon of the gas formed; no wick is necessary.

4606. Complete. Each $12 00

4607. Burner only. Each 7 50

4609. **Lamps—Kellogg's New Vapor Lamp.**—Can be used in sets of two or more, using the same tank. Each $3 00

4613. **Lamps—Russian Blast.**—For alcohol; of brass. A self-acting, upright blast lamp, for brazing, etc. Each $1 75

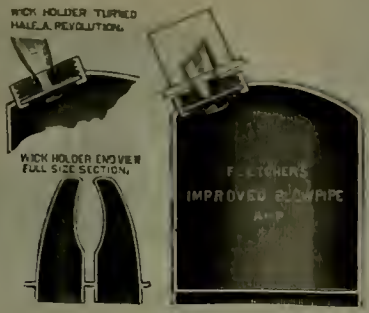
4614. **Lamps—French Blast Lamp.**—For alcohol. Made of brass and copper, with safety valve, horizontal blast; for soldering, brazing, etc.

No.	1	2	3
Capacity, ounces	1	1½	2
Each	$2.00	2.50	3.00

4621. **Lamps—Blowpipe.**—Plattner's model; of brass, nickel plated; on stand.

Plain. Each $3 00

With patent swivel. Each 3 50



4623



4641



4642

Lamps—Blowpipe.—Fletcher's; for oil. The wick-holder lifts out for refilling; the angle of flame can be adjusted by simply revolving the holder in the fixed collar.

4623. Brass finish. Each $0 75

4624. Nickel plated. Each 1 00

4626. **Lamps—Miners' Safety.**—Clanny improved—the best lamp for miners; strong and efficient.
Each $3 00
Extra glasses. Each 50

4629. **Lamps—Miners'.**—For wearing on hat or cap. Each 35

4630. **Lamps—Miners'.**—Of Russia iron, for work in the mills. Very strong.
Each 60

4641. **Lamps—Parting.**—For alcohol; of galvanized iron, with shelves for sand bath and annealing cups; upper shelf perforated for holding test tubes.

Burners	6	8	10
Each	$3.00	3.50	4.50

4642. **Lamps—Parting.**—Like preceding, but without upper shelf, and with a hood and pipe for carrying off fumes.

Burners	6	8	10
Each	$3.50	4.00	5.00

(See also Burners, No. 2541.)

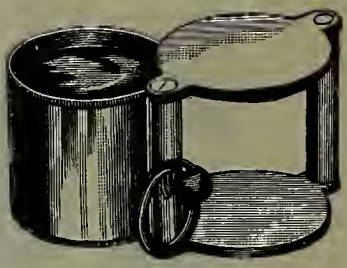
Lamp Wicks.

4651. For parting lamps. Per dozen $0 10

4652. For alcohol lamps. Per dozen 25



4686



4691



4694



4672



4697

4672. **Lenses.**—Single glass, round; mounted in nickel-plated frame.

Diameter, inches	2½	3	3½	4	4½	5⅛
Each	$0.80	1.00	1.50	2.00	2.50	3.00

Lenses—Folding.—For pocket; mounted in rubber frame.

Diameter, inches	1	1¼	1½
4681. 1 glass. Each	$0.50	.75	1.00
4682. 2 glasses. Each	.75	1.00	1.50
4683. 3 glasses. Each	1.10	1.50	2.00

Lenses—Folding.—Mounted in oxidized frame.

Diameter, inches	1	1¼	1⅜
4684. 1 glass. Each	$0.50	.60	.75
4685. 2 glasses. Each	.75	1.00	1.25
4686. 3 glasses. Each	1.10	1.50	1.85

4691. **Lenses—Folding—Coddington.**—Nickel plated; very powerful and convenient.

Diameter, inches	½	¾	1	1¼	1½
Each	$1.50	1.75	2.00	2.25	2.50

4692. **Lenses—Coddington.**—Brass frame, with handle.

Diameter, inches	½	1	1½
Each	$1.00	1.50	2.00

4694. **Lenses.**—Of brass, mounted on a tripod, with screw adjustment. Each..$0 50

Lenses—Linen Provers, or Thread Counters.

4697. Opening, inches	¼	½	1	
Each	$0.35	.50	1.50	
4698. Opening, cm.	5	10	20	25
Each	$0.35	.50	1.00	1.50



4706

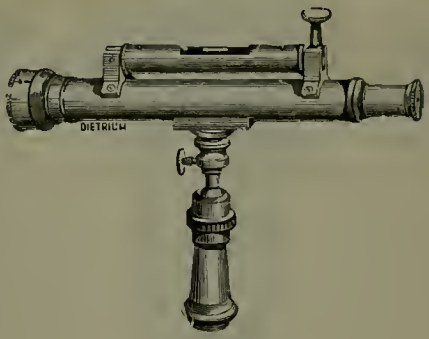


4711



4712

4714



4719

4701. **Lenses—Watchmakers' Eyepieces.** Each $0 30

4706. **Levels—Spirit.**—For balances; mounted on brass.

Length, inches	3	4	5
Each	$0.50	.60	.70

4707. **Levels—Spirit.**—Iron case, for pocket use. Each $0 25

4711. **Levels—Locke's Hand Level.**—Of platinized brass, in case; round tube, 5 inches long. Each $6 00

4712. **Levels—Reflecting Hand Level.**—Similar to preceding, but with square tube. The lower surface is flat and parallel to the bubble; hence the instrument can be used as a contact level. Each $5 00

4714. **Levels—Abney's.**—A reflecting level or pocket altimeter, with arc to show gradients, serving both as hand level and clinometer. In morocco case. Each.. $15 00

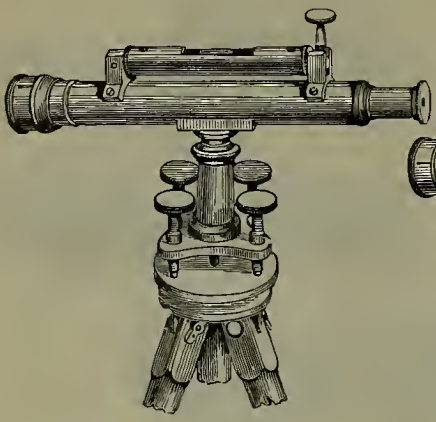
4715. **Levels—Abney's Improved.**—Similar to the preceding, but having bar compass and socket for jacob-staff. Each $18 00

4716. **Levels—Roadmakers'.**—With hair sights, ball and socket joint. Each..... $12 00

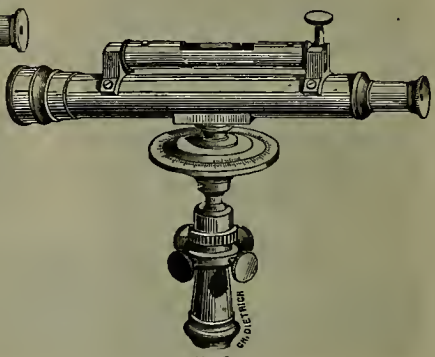
Levels—Surveyors'.—With 7½-inch telescope, the objective being 1 inch in diameter; slide motion to eyepiece. In walnut case.

4719. With ball and socket joint. Each $16 00

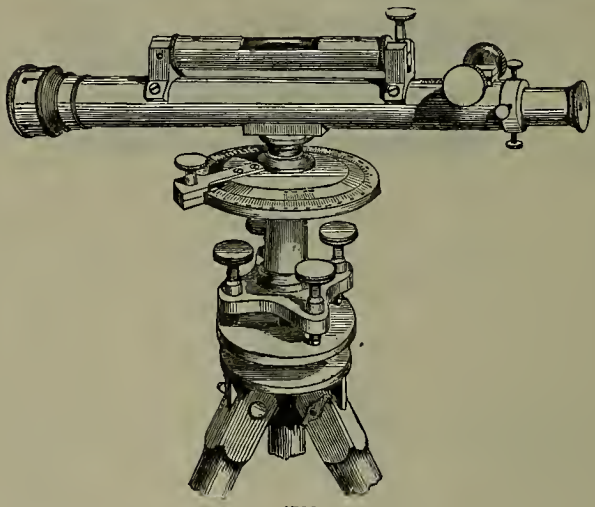
4720. With parallel screw adjustment and tripod. Each 27 50



4720



4726



4729

Levels—Surveyors'.—With 10-inch telescope, with parallel screws for tripod; in walnut case. Platinized finish, with tripod.

4723. With slide motion to telescope. Each $30 00

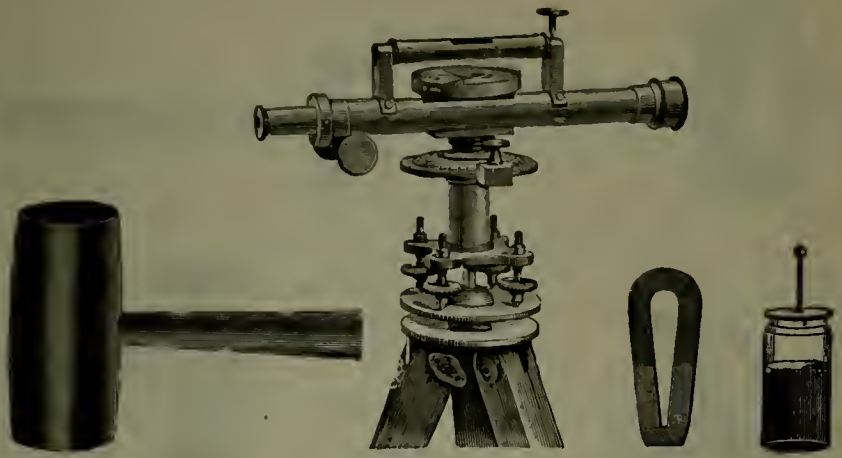
4724. With rack and pinion motion. Each 32 50

Levels—Architects'.—With graduated arc, slide motion to telescope, parallel screw adjustment.

4726. Telescope, 7½ inches. Each $22 00

4727. Telescope, 11 inches. Each 24 00

4729. **Levels—Architects'.**—With 11-inch telescope, clamp for marking points on graduated arc; rack and pinion motion, parallel screw adjustment, platinized finish; in walnut case, with tripod. Each $35 00



4781 4731 4773 4751

4731. Levels—Architects' and Surveyors'.—With 11-inch telescope, rack and pinion motion, graduated arc, with indicator, parallel screw adjustment; 2¾-inch compass, with stop for needle. Platinum finish; in walnut box; with tripod.
Each $42 50

4741. Level Glasses.—For spirit level, not mounted.

Length, inches	3	4	5
Each	$0.10	.15	.20

4751. Leyden Jars.—For electrical machines.

Size	1 pint	1 quart
Each	$1.50	1.75

4761. Litmus Paper.—Red or blue; in books. Per dozen books $0 50

4762. Litmus Paper.—Red or blue, in sheets. Per dozen 50

4764. Litmus Pencils.—Of chemically pure litmus, blue on one end and red on the other. Each $0 25

4771. Magnets—Bar Shaped.—Straight, of steel; sold in pairs to prevent loss of magnetism.

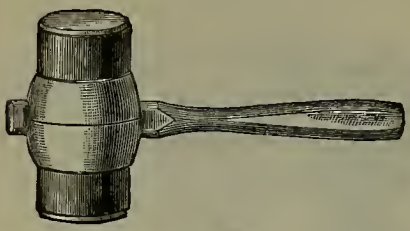
Length, inches	4	5	6	8	10
Each	$0.40	.50	.70	.80	1.00

4773. Magnets—Horseshoe.—Of superior quality.

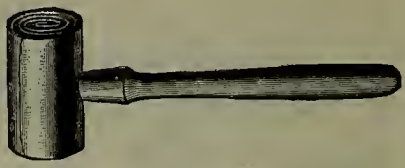
Length, inches	2	3	4	5	6	7
Each	$0.10	.15	.20	.30	.50	.75
Length, inches	8	9	10	12	14	
Each	$1.10	1.50	1.75	2.50	3.25	

4781. Mallets—Wood.—For assayers; of dry, selected stock.

Diameter, inches	2	2½	3	3½
Each	$0.25	.30	.35	.45



4782



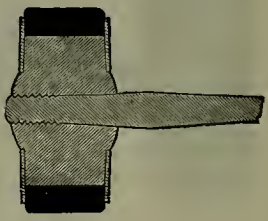
4783



4801



4791



4784

4782. **Mallets—Wood.**—Iron bound, 3-inch face. Each $0 75

4783. **Mallets—Rawhide.**

Diameter, inches	1¼	1½	2
Each	$0.50	.75	1.00

4784. **Mallets—Rawhide.**—With iron rings.

Diameter, inches	1¼	1½	1¾
Each	$1.00	1.25	1.50

4791. **Mattrasses.**—For blowpipe analyses; of glass, long neck, round bottom.
Per dozen $0 50

Measures—Of Capacity.—Cone shape, with handle.

Size	1 gill.	½ pt.	1 pt.	1 qt.	½ gal.	1 gal.
4801. Agate ware. Each	$0.25	.35	.40	.50	.70	1.00
4802. Copper	.40	.50	.60	.90	1.25	1.50
4803. Tin	.10	.15	.20	.25	.30	.40
4804. Wood	...	...	.35	.50	.65	.85

Measures—For Liquids.—As above; in sets.

4806. Agate. Per set $3 00
4807. Copper. Per set 5 00
4808. Tin. Per set 1 25
4809. Wood. Per set 2 25

4816. **Measures—Of Capacity.**—Metric, for liquids; in sets of 8 pieces, from 1 centilitre to double decalitre, cylindrical shape, with handle. Per set $2 25

4818. **Measures—Of Capacity.**—Metric, for dry substances; in sets of 6 pieces, ½ Decilitre to double Decalitre; cylindrical shape. Per set $1 75

4819. **Measures—Of Capacity.**—Of heavy tin, strongly braced, with lip and bale.

Size	1 litre	2 litres	5 litres	Decalitre	Double Decalitre
Each	$0 75	1.00	1.85	2.50	3.50

4821. **Measures—Of Capacity.**—Metric, for dry or liquid substances, of japanned tin, cylinder shape; in sets of 8 pieces. Per set $2 00

Measures—Linear.—Of wood.

4836. Foot divided into 12 inches by 1 16 and into 30 cm., with beveled edge. Each $0 15

4837. Yards, divided into inches by 1/8, plain. Each 40

4838. Yard, divided into inches by 1/8, brass bound. Each 50

4839. Yard and meter, with subdivisions. Each 50

4840. **Measures—Linear—Folding.**—One meter, divided into millimeters on one side, and English yard divided into inches on the other; of boxwood. Each.....$0 35

4841. **Measures—Linear.**—Of steel; a rule 10 centimeters long, with inches on one side, subdivided into 1/64 and 1/100. Each$0 75

4842. **Measures—Linear.**—Of steel, 6 inches long, divided into 1/100 inch on one side, and 15 centimeters, divided into millimeters, on the other. Each.....$1 25

4843. **Measures—Linear.**—Of steel. Straight edge, with bevel, divided into 1/4, 1/8, 1/16, 1/32, 1/64 of an inch.

Length, inches	6	12
Each	$0.65	.80



4846

Measures—Tape.—Of steel, in German silver case.

Length, feet	3	6
4846. Feet and inches only. Each	$1.00	1.25
4847. Feet and inches and metric measure. Each	1.25	1.50

4850. **Measures—Tape.**—Of steel, in leather case, divided into feet and inches on one side and links on the other.

Length, feet	25	33	50	66	75	100
Each	$4.40	5.20	7.00	8.80	10.00	12.40

4851. **Measures—Tape.**—Of steel, in leather case, like preceding, but divided into feet and one-hundredths on one side, and links on the other. Same prices as preceding.

4853. **Measures—Tape.**—Of steel, in leather case, same style as preceding, but with metric divisions.

Length, meters	10	20	25	30
Each	$5.20	8.80	10.00	12.40

4855. **Measures—Tape.**—Of steel, like preceding, but with metric divisions on one side, and feet and inches on the other.

Length, meters	10	15	20	25	30
Length, feet	33	50	66	75	100
Each	$5.50	7.50	9.25	10.80	13.00

4856. **Measures—Tape.**—Of varnished linen interwoven with metal. Divided into feet and inches on one side and into links on the other. In leather case.

Length, feet	25	33	50	66	75	100
Each	$1.80	2.10	2.60	3.00	3.30	4.20

4857. **Measures—Metallic Tape.**—Similar to preceding, but divided into feet and one-hundredths on one side, and into links on the other. Same prices as preceding.

Measures—Metallic Tape.—Like preceding, but with metric division.

	Length, meters	10	15	20	25	30
4859.	Metric divisions only. Each	$1.75	2.00	2.25	3.10	3.90
4860.	Metric divisions and feet. Each	2.25	2.75	3.25	3.60	4.50

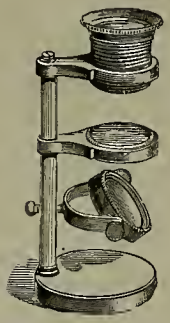
Measures—Linear—Chains for Surveyors.—Made of the best quality of wire, with brass swivel handles, tallies, etc. They are divided either into feet or into Gunter measure (16½ feet = 1 pole, by links).

	Length	50 x 1 ft.	100 x 1 ft.	33 ft. x 1 link	66 ft. x 1 link
4866.	Iron. Each	$3.00	5.00	3.00	4.50
4867.	Steel. Each	5.00	9.00	4.50	7.00
4868.	Steel, brazed. Each	6.00	11.00	5.50	10.00

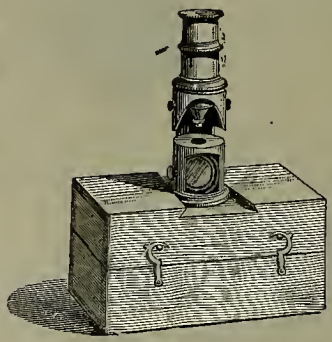
(See also Scales, No. 5976.)



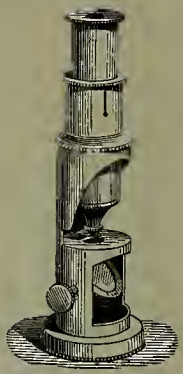
4891



4892



4893



4894

4891. **Microscopes—Botanical.**—For primary school work; a very cheap, but convenient article. Each $0 60

4892. **Microscopes—Dissecting.**—With pillar support, glass stage, plane mirror, eye-piece moving up and down by a screw thread; in polished box, with forceps, knife and needle. Each $4 50

4893. **Microscopes—Home Microscope.**—3 inches high, in walnut box, with prepared slides. Very powerful for its size. 30 diameters. Each $3 00

Microscopes.—With slide motion, plane mirror, polished case, with slides and pincers.

4894. 6 inches high, 2 lense, power 50 diameters. Each $3 50

4895. 8 " " 3 " " 80 " " 4 00

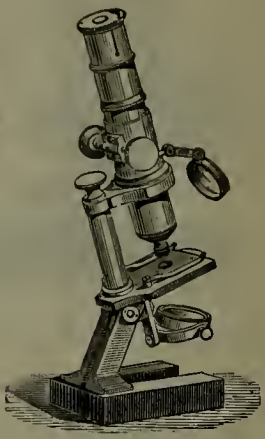
4896. 9½ " " 3 " " 125 " " 8 00



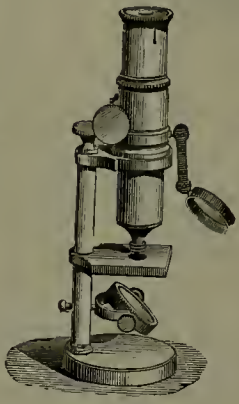
4897



4906



4908



4902

Microscope—Household.—With hinged joint, in polished box, with accessories. A very convenient article; with slide motion; 9 inches high.

4897. With 3 plano convex lenses, plane condenser, power 110 diameters.....**$10 00**

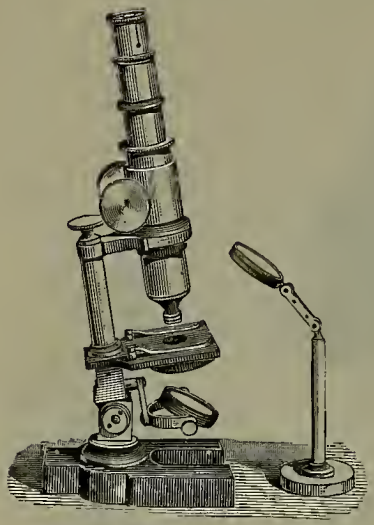
4898. With 3 achromatic lenses, concave mirror, power 180 diameters **12 00**

4899. Microscope—Household.—Similar to preceding, but with rack and pinion motion, 3 achromatic lenses; power 180 diameters. Each**$15 00**

4902. Microscopes.—Column support, with condensing lense. Height, 7 inches, 3 plano convex lenses; power 100 diameters. Each **$6 00**

4906. Microscopes.—With rack and pinion motion, condenser with universal motion for opaque bodies, revolving diaphragm; in polished case. Height, 9 inches; with 3 plano convex lenses, giving a power of 120 diameters. Each.....**$22 00**

4908. Microscopes.—With rack and pinion motion, with condensor for opaque objects, concave mirror, revolving diaphragm; in polished box. Height, 10½ inches, with 3 achromatic lenses, giving it a power of 30 diameters. Each.....**$26 00**



4914



4946



4947

4914. **Microscopes.**—With rack and pinion motion, plane and concave mirror, revolving diaphragm; in polished box, with accessories. Separate condenser for opaque objects. 1 objective with 3 achromatic lenses and 2 eye-pieces, giving an enlargement of 240 and 560 diameters. Each $40 00

4916. **Microscopes.**—With rack and pinion motion for rough adjustment, micrometer screw action for fine adjustment. Stage of brass, with revolving diaphragm; plane and concave mirrors with double motion. The barrel is so constructed that it can be drawn out to increase the distance between eye-piece and objective. Separate condensing lens with universal motion; in polished box with accessories. Height (closed), 10½ inches. Three eye-pieces and one objective with 3 achromatic lenses.
Each $56 00

4917. With revolver for double nose-piece 68 00
We have several other styles of microscopes at prices intermediate between the above.

Microscope Covers.—½, ⅝ or ¾-inch.

4931. Round. Per 100 $0 80
4932. Square. Per 100 80

4936. **Microscope Dishes.**—For staining, watch-glass form, beveled edge, flat bottom, with groove allowing one to set over the other; ground mark on edge to write name on. Per dozen $1 00

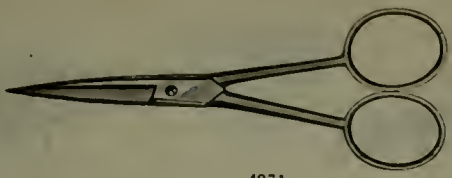
4937. **Microscope Dishes.**—Petri's, for cultures, etc. Each 35

Microscope Forceps.

4946. With bent blades, 100 mm. long. Each $0 50
4947. With straight blades, 120 mm. long. Each 50
4948. Self-closing, 100 mm. long. Each 50
4949. Cornet's, grasping a small surface by the end. Each 60

4956. **Microscope Knives (Scalpels).**—With blades of best steel. Each 25


4961


4971


5021


5016


5022

4961. **Microscope Needles.**--For dissecting. Per dozen 18

Microscope Scissors.

4971. Straight, of steel, 115 mm. Each 70

4972. Curved, of steel, 115 mm. Each 75

Microscope Slides.—With ground edges, 3 x 1 inch.

4981. Medium thick. Per box of 50 50

4982. With concave centers. Per dozen 70

Milk Testers.—(See Apparatus and Hydrometers.)

5001. **Mixing Capsules.**—Of brass, for blowpipe use. Each$0 25

5016. **Mortars.**—Of agate, with pestle, for blowpipe and analytical work.

Diameter, inches	1¼	1½	1¾	2	2¼
Each	$1.25	1.60	1.85	2.25	2.75
Diameter, inches	2½	3	3½	4	4½
Each	$3.50	5.00	8.00	9.50	12.00

5021. **Mortars—Diamond.**—Plattner's form, of hardest steel, with air-tight ring to prevent loss of dust when crushing small quantities of ore.

	Small	Large
Each	$4.00	5.00

5022. **Mortars—Diamond.**—Leed's, of hardened steel. Each$2 00


5026

5026. **Mortars—Glass.**—With lip and pestle.

Capacity, ounces	1	2	4	8	16	32
Each	$0.15	.25	.30	.40	.60	.80



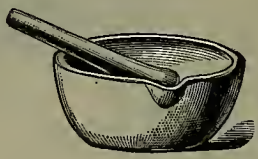
5031



5033



5036



5041

5031. Mortars—Iron.—Bell shape, for powdering quartz; with heavy bottom and pestle; ground inside.

Height, inches		3½	4	5	6
Capacity, pints		½	1	2	4
Weight with pestle, pounds		4	6¼	9	14
Each		$0.75	1.00	1.25	1.75
Height, inches	7¼	8	9	10½	12
Capacity, gallons	1	1½	2	3	4
Weight with pestle, pounds	21	36	43	74	87
Each	$2.50	3.00	4.75	7.50	9.00

5033. Mortars—Iron.—Urn shape, for light grinding.

Capacity	½ pt.	1 pt.	2 pts.	4 pts.	1 gal.	2 gals.
Diameter, inches	3¾	5	5½	7	8½	11
Each	$0.50	.60	.75	1.25	2.25	3.50

5036. Mortars—Iron.—White's patent. There are three flanges on the muller; by rotating the latter a large sample of quartz can be ground in contact with the quicksilver. The best mortar for amalgamation.

Diameter, inches	6½	8½	10½	12½
Weight, pounds	38	61	69	102
Each	$6.50	8.00	10.00	15.00

5041. Mortars—Porcelain.—With pestle, for grinding fluxes and liquids; glazed outside and "biscuit" inside.

Capacity, ounces	¾	1	1½	2	4
Diameter, inches	2	2⅜	2¾	3⅜	4
Each	$0.25	.30	.35	.40	.50
Capacity, ounces		6	8	16	22
Diameter, inches		4¾	5⅜	6¼	7¼
Each		$0.65	.80	1.20	1.50



5046

5046. **Mortars—Wedgewood.**—With pestle, for grinding fluxes and other dry substances

No.	4/0	3/0	2/0	0	1	2	3
Diameter, inches	3	3¼	3½	4	4½	5	6
Capacity, ounces	2	3	4	6	11	16	24
Each	$0.40	.45	.50	.55	.60	.80	1.00
No.		4	5	6	7	8	9
Diameter, inches		6½	7	8	8½	9½	10½
Capacity, ounces		30	40	48	56	72	112
Each		$1.25	1.65	2.00	2.50	3.00	3.50
No.					10	11	12
Diameter, inches					12	13	14
Capacity, gallons					1¼	1¾	2
Each					$4.50	5.25	6.00

(See also Crushers, No. 3061; Grinders, No. 4091; Stamp Mills, No. 6206.)

Motors—Electric.—½ H. P., 115 Volts.

For driving the centrifuge apparatus described on first pages.

5047. Direct current, with pulley and starting rheostat. Each $45 00
5048. Alternating current, single phase, with pulley. Each 52 00
5049. Alternating current, three phase, with pulley. Each 39 00

Moulds—Assay.—For pouring charges from the crucible, with 2 holes drilled smooth.

5056. Deep form, with conical holes. Each $1 00
5057. Shallow form, with round holes. Each 75



5061



5064

Moulds—Assay.—For pouring, or scorification. Of light iron, on stand.

5061. With three holes. Each $0 75
5062. With four holes. Each 1 00

Moulds—Assay.—For pouring, of light iron, without stand.

5064. With six holes. Each $0 75
5065. With twelve holes. Each 1 50



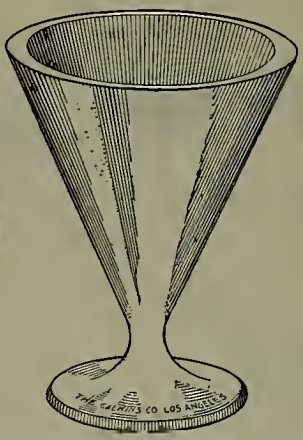
5068

Moulds—Assay.—For pouring, of heavy iron, without stand, conical cavities.

5068. With two holes. Each $1 25
5069. With six holes. Each 2 00



5072



5076



5079



5093

Moulds—Assays.—For pouring; of iron, without handle; conical cavities.

5071. With six holes. Each $0 75

5072. With twelve holes. Each 1 00

Moulds—Assay.—For pouring contents of large crucibles; conical shape, with base.

5076. Depth 8 inches, diameter of top 8 inches. Each..... $4 00

5077. " 12 " " " " 12 " " 5 50

Moulds—Assay.—For contents of large crucibles; for cyanide operators, who refine their slime. These moulds are conical and mounted on tripod.

5079. Depth 4¾ inches, top diameter 6 inches. Each..... $ 2 00

5080. " 9 " " " 8 " " 5 00

5081. " 17½ " " " 18 " " 20 00

5083. **Moulds—Assay.**—Of cast iron, with round holes for crucible or scorification assays, with wood handle.
With 9 holes. Each $1 25

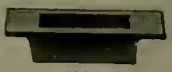
5085. **Moulds—Assay.**—Like preceding, but without handle.
With 25 holes. Each $1 25

5091. **Moulds—Bullion or Ingot.**—Of cast-iron, with sliding bar to regulate the size of bar. Inside measure, 8 x 1½ x 1½ inches; capacity, 150 oz. gold. Each..$1 00

5093. **Moulds—Bullion or Ingot.**—Quadruple, to make four small bars. Each.... 1 00



5095



5101



5101

5095. **Moulds—Bullion.**—Sliding; made of iron, with faces planed true. They are adjustable sideways, so that any width of metal from 2¾ down can be cast. Provided with cam fastening device, by which the sliding section can be quickly operated.

Size, No. 1, 2¾ inches high, ⅛–3/16 wide. Each $2 00
Size, No. 2, 4½ inches high, ⅛–3/16–¼ wide. Each 2 50
Size, No. 3, 6 inches high, ⅛–3/16–¼ wide. Each 3 00

5101. **Moulds—Bullion.**—For large bars; round corners. The dimensions given below are inside measures.

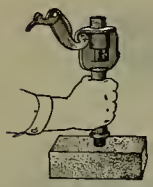
Capacity in Gold	Capacity in Silver	Measures, Inches	Each
28 oz.	15 oz.	$2^{7}/_{16}$ x 1⅜ x 1⅛	$0 35
48 "	20 "	3 x 1¾ x 1¼	50
96 "	40 "	4⅛ x 1¾ x 1¾	75
150 "	80 "	4¾ x 2⅜ x 1⅞	1 00
200 "	107 "	5 x 2¾ x 2	1 25
300 "	160 "	5¾ x 3¼ x 2¼	2 00
500 "	275 "	7¼ x 3 x 2⅞	2 50
1000 "	575 "	9¾ x 4⅜ x 4	3 00
1850 "	1000 "	11¾ x 5¼ x 5	5 00
3040 "	1600 "	18 x 6 x 5¾	7 50



5106

Moulds—Cupel.—For making cupels for assays.

Diameter of cupel, inches	½	¾	1	1¼	1½
5106. Iron, each	...	...	$1.25	1.50	1.65
5107. Brass, each	$1.75	2.00	2.00	2.25	2.50



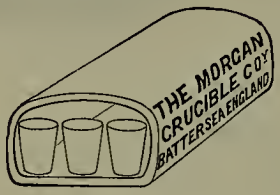
5111



5111



5111



5121



5121

Diameter of cupel, inches	1¾	2	2¼	2½
Iron, each	$2.00	2.25	2.50	3.00
Brass, each	2.75	3.00	3.50	4.50

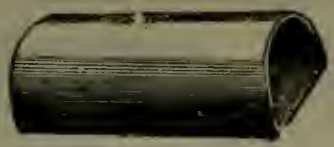
5111. **Moulds—Cupel—Calkin's Simplex.**—A simple, effective and cheap cupel mould; self-contained. No hammer or mallet required. Adjustable for making cupels for greater or less depth of bone ash. The illustration shows the method of filling, striking and extracting cupel from mould.

Size, diameter, inches	1¼	1½
Each	$3.50	3.50

(See also Presses, Cupel, 5556.

5121. **Muffles—Battersea.**—Of clay.

No.	Outside measure, inches: Width	Length	Height	Shape	Price
C	4¾	8	3	Low	$0 60
E	5½	9	3⅝	"	70
F	6	10	4	"	75
G	4¼	11	3⅛	"	65
H (Mint)	5¼	10½	3⅞	"	75
J	6	12	4	"	90
K	8	14	5	"	1 25
KK	8	14	5	High sides	1 25
LL	9	15	6	" "	1 50
NN	10	16	6½	" "	1 75
PP	11	18	7¾	" "	2 25
RR	12	18	7¾	" "	2 50
SS	12	19	7¾	" "	2 50



5126

5126. Muffles—Clay.—Denver make.

No.	Outside measure, inches Width	Length	Height	Vent hole	Each
BB	3½	6	2½	top	$0 50
CC	4¾	8	3	end	60
C	4¾	8	3	top	60
H	5¼	10½	4	end	75
F	6	10	4	end	75
FF	6	10	4	top	75
J	6	12	4	end	90
JX	6	12	4	top	90
CD	7	10½	4¾	end	75
G	7	12	4½	"	1 00
KK	8	12	5	"	1 15
LL	9	15	5¾	"	1 50
I	10	16	6½	"	1 75
JJJ	10	18	6¼	"	2 00
NN	10½	19	6½	"	2 15
PP	11	18	7¼	"	2 25
QQQ	12¼	18	7¾	"	2 50
QQ	12¼	19	7¾	"	2 50
SS	12¾	21	8¼	"	2 75
U	14	18	7¼	"	2 75



5136



5151

5136. Muffler—Black Lead.—For use in connection with Fletcher's Furnaces.

		Each.
No. 3	3 x4 x2⅜ inches inside,	$1 00
No. 4	3⅞x5⅞x3 " "	1 25
No. 5	4⅞x6⅞x4 " "	1 50

5141. Muffle Arches.—A.

Size for muffle	LL	I	O	QQQ	T	U
Each	$1.35	1.45	1.50	1.65	1.80	2.00

5146. Muffle Arch Reducers.—B. To diminish the opening to admit of a 20-gramme crucible and to prevent cold air draft striking the muffle when in use.

Each $0 60

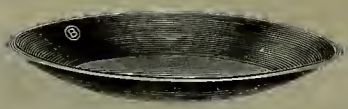
5151. Muffle Domes—Plumbago.—For Fletcher Furnaces.

Size of Furnace	3	4	5	6
Domes, each	$1.15	1.50	1.50	2.50

5161. Needles—Magnetic.—Mounted on stand, 6 inches long. Each $1 25



5171



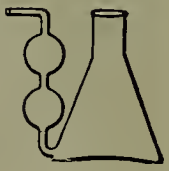
5236



5181



5182



5185

5171. **Nippers.**—Of steel, end cutting, for wire, etc.

Length, inches	6	7	8
Each	$0.80	1.00	1.15

Nitrometers.—(See Apparatus, Nitrogen, 1621-1516.)

5181. **Nitrogen Bulbs.**—Will & Varrentrap's, with 3 bulbs. Each $0 30

5182. **Nitrogen Bulbs.**—Will & Varrentrap's, with 4 bulbs. Each 35

5183. **Nitrogen Bulbs.**—Simpson's, 3 bulbs. Each 40

5184. **Nitrogen Bulbs.**—Volhard's, right-angle bulb. Each 50

5185. **Nitrogen Bulbs.**—Fresenius, for direct titration. Each 50

5191. **Odometers.**—For measuring distances traveled by a wagon; attached to a spoke; moving once at every revolution of the wheel; in leather case, with strap. Each $15 00

5202. **Odometers—McDonnell's.**—All metal; a very convenient and accurate measurer. Each $5 00

5211. **Oil Cloth.**—For sampling, 45 inches wide. Per running yard $0 60

Oil Testers.—(See Testers, No. 6546.)

5221. **Pails.**—For mills, of oak, with solid bottom. Each 1 25

5223. **Pails.**—For mills, of agate iron, 2 gallons. Each 1 25

5225. **Pails.**—For mills, of galvanized iron. Each 50

Pans—Miners'.—For washing gold.

Diameter, inches	6	8	12	16½
5231. Steel. Each	$0.20	.25	.50	.50
5233. Aluminum. Each	.60	...	1.25	1.60
5236. Russia iron. Each	...	...	...	.50
5237. Agate iron. Each	...	...	...	1.25
5238. Copper. Each	.65	...	1.50	2.50
5239. Iron rim, copper bottom. Each	...	...	...	2.50

5251. **Pans—Sampling.**—For ores, of seamless steel.

Diameter, inches	5½	7½
Each	$0.13	.20



5253



5255

5253. **Pans—Sampling.**—Of agate iron.

Diameter, inches	3½	4¼	5½	6½
Each	$0.11	.13	.15	.20

5255. **Pans—Sampling.**—Of seamless tin.

Diameter, inches	4	5	6	7	8½
Per dozen	$0.40	.60	.70	.80	1.00

Pans—Scale.—Balanced for weighing.

Diameter, inches	2	2¼	2½	2¾	3
5261. Glass. Per pair	$0.35	.40	.40	.40	.40
5262. Nickel plated. Per pair	.75	.75	.75	.75	.75

5271. **Paper—Glazed.**—For sampling pulverized ores, 24x20 inches. Per quire....$0 40

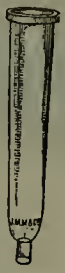
5281. **Pencils—Diamond.**—For writing on glass. Each 2 50

5283. **Pencils—Grease.**—For marking porcelain or glass. Each 15

5285. **Pencils—Litmus.** Each 25



5296



5298



5301



5302

5296. **Percolators—Glass.**—Cone shate.

Capacity, pints	½	1	2
Each	$0.30	.40	.60

Capacity, gallons	½	1	1½	2
Each	$0.90	1.00	1.35	2.00

5298. **Percolators—Glass.**—Squibbs' narrow form.

Capacity	½ pt.	1 pt.	1 qt.	½ gal.	3 qts.	1 gal.	2 gals.
Each	$0.30	.35	.45	.70	1.00	1.50	2.50

5301. **Percolators—Porcelain.**—With small holes, glazed.

Diameter, inches	4	5	6	8
Each	$0.65	.85	1.25	1.65

5302. **Percolators—Porcelain.**—With large holes, glazed.

Diameter, inches	4	5	6	7
Each	$0.50	.65	.95	1.50

5306. **Percolators—Tin.**—With brass sieve and cover, for straining decoctions.

Capacity	1 qt.	½ gal.	1 gal.	2 gals.
Each	$0.80	1.00	1.25	1.75

5307. **Percolators—Tin.**—With brass sieve for straining decoctions, cover and stopcock.

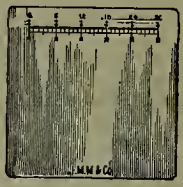
Capacity	1 qt.	½ gal.	1 gal.	2 gals.
Each	$1.25	1.50	2.00	2.50



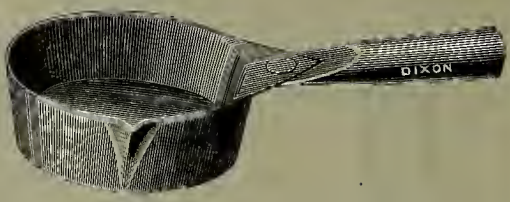
5322



5346



5341



5331

5321. Picks—Pole.—Face ⅞x⅞, weight 1 lb., with handls. Each $1 50

5322. Picks—Prospectors'.—Of solid cast steel.

No.	1	2	3
Face, inches	¼	⅞	1
Weight, ounces	25	30	38
Each	$1.00	1.25	1.50

5331. Pickle Pots.—Of heavy copper, for jewelers. Per pound $0 85

Picnometers.—(See Bottles, Specific Gravity, No. 2326.)

5341. Pill Tiles.—Of porcelain, graduated.

Size, inches	6x6	7x7	8x8	9x9
Each	$0.45	.60	.75	1.00
Size, inches	10x10	12x12	6x8	8x10
Each	$1.13	1.88	.75	1.00

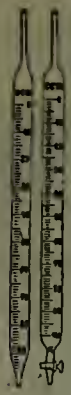
Pincers.—(See Forceps, No. 3706.)

5346. Pipettes—Volumetric.—With 1 mark; accurately graduated.

Capacity, cc.	1	2	3	4	5	10
Each	$0.10	.10	.15	.15	.15	.20
Capacity, cc.	20	25	50	100	200	
Each	$0.25	.30	.40	.60	.75	

5347. Pipettes—Volumetric.—With 1 mark and bulb.

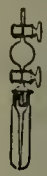
Capacity, cc.	5	10	20	25	50
Each	$0.18	.23	.28	.33	.45


5348-5349


5358


5366


5367


5371


5372


5381

5348. Pipettes—Volumetric—Mohr's.—Accurately graduated into fractions of 1 cc.

Capacity, cc.	1x1/100	1x1/50	1x1/20	1x1/10
Each	$0.60	.50	.35	.30
Capacity, cc.	2x1/100	2x1/50	2x1/20	2x1/10
Each	$0.80	.60	.50	.35
Capacity, cc.	5x1/10	5x1/5	10x1/10	10x1/5
Each	$0.50	.45	.65	.55
Capacity, cc.	20x1/10	20x1/5	25x1/10	25x1/5
Each	$0.80	.75	.90	.80
Capacity, cc.	50x1/10	50x1/5	100x1/5	100x½
Each	$1.25	1.00	2.00	.150

5349. Pipettes—Volumetric—Mohr's.—With glass stopcock, accurately graduated into fractions of 1 cc.

Capacity, cc.	10x1/10	25x1/10	50x1/10	100x1/5
Each	$1.50	1.75	2.00	.2.50

5351. Pipettes—Volumetric.—Divided accurately into grains.

Capacity, grains	10	50	100	250	500
Each	$0.75	.85	1.00	1.25	1.50

5352. Pipettes—Volumetric.—Normal, with correction stamp of German government.

Capacity, cc.	5	10	25	50	100
Each	$1.00	1.10	1.25	1.35	1.50

5353. Pipettes—Volumetric—Mohr's.—With correction stamp of German government.

Capacity	1x1/100	5x1/20	10x1/10	25x1/10
Each	$1.50	1.75	2.00	2.50

5357. Pipettes—Overflow—Rickett's.—100 cc. capacity, with cup ground to the top.
Each $2 50

5358. Pipettes—Overflow—Fresenius.—With 3-way stopcock.

Capacity, cc.	10	25	50
Each	$2.25	2.50	2.75

5366. Pipettes—Dropping.—Small, with rubber bulb, straight end. Each $0 05

5367. Pipettes—Dropping.—Small, with rubber bulb, bent end. Each 05

5371. Pipettes—Weighing—Lunge's.—For weighing fuming acids, etc. Each 2 00

5372. Pipettes—Weighing—Grethan's.—For fuming acids. Each 2 25

5381. Pipette Rests.—Of porcelain, fluted. Each 65.

Platinum Ware

Our stock of Platium Ware is of the very best make, that of Baker & Co., of Newark, New Jersey, whose platinum ware has been used with great satisfaction throughout the United States. The crucibles, dishes, etc., are hammered and not spun. The prices we quote are good only for the time when quotation is made, as platinum is subject to all the fluctuations of the market, and the prices quoted cannot be guaranteed for any length of time.



5436



5426



5421-3 5431-2 5433



5437

5421-3. **Platinum Anodes.**—For electrolytic separations. They are made either in spiral form (5421), or flat spiral form (5422), or circle form (5423).
Price, per gramme.....

5426. **Platinum Boats.**—For combustion. These are made in any form desired, the ordinary sizes being:

Width	Depth	Length	Approximate Weight
½	⅜	1½	2.8 grammes
½	⅜	2	3.6 "
½	⅜	3	5.8 "

Price, per gramme

5431-3. **Platinum Cathodes.**—For electrolytic separations. They are either made in closed cylinders (5431), open cylinders (5432), or cone shaped (5433).
Price, per gramme

5436. **Platinum Cones.**—Seamless; made at an angle of 60 degrees, with fine or coarse separations, for filtering with vacuum pump.

Diameter, inches	¾	⅞	1	1¼	1½	1¾	2
App. weight, grammes	1.	1.5	2.1	3.1	5.3	7.5	9.2

Price, per gramme

5437. **Platinum Cones—Flexible.**—For filtering; with fine or coarse perforations; adjustable at any angle.

Diameter, folded, inches	¾	⅞	1	1¼	1½	1¾	2
App. weight, grammes	1	1.3	1.7	3.3	4.0	6.2	6.8

Price, per gramme



5441



5443

5441. Platinum Crucibles.—Fitted with covers (sold with or without covers), made so that they weigh approximately as many grammes as they hold cubic centimeters.

Capacity, cc., about / Weight, grammes, about	6	8	10	12	15	20	25	30
Capacity, cc., about	35	40	50	60	70	80	90	100
Weight, grammes, about	35	40	50	62	65	68	70	80
Price, per gramme								

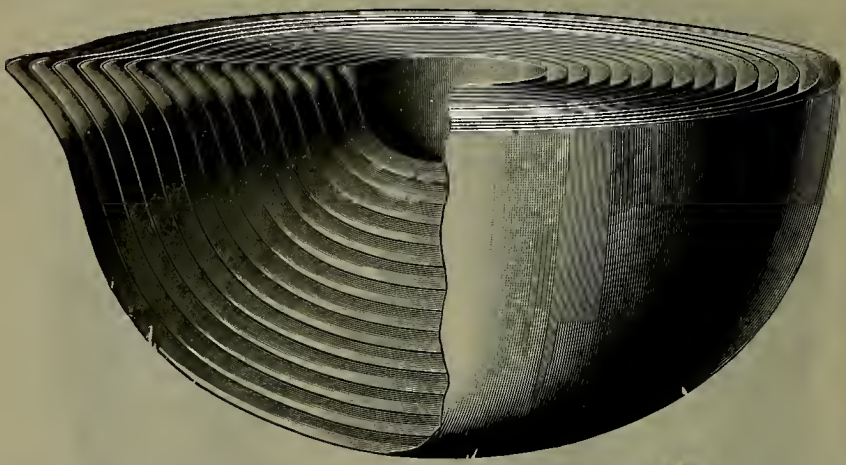
5443. Platinum Crucibles.—Gooch form, with perforated bottom, cover and cap for bottom.

Diameter, mm.	27	32	33	36	39
Capacity, cc., about	10	15	20	25	30
Weight, grammes, about	13	18	22	29	34
Price, per gramme					

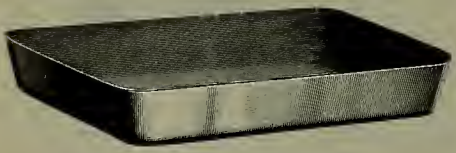
5446. Platinum Dishes.—With or without lip, the lipped form being sent except when otherwise ordered. They measure about three times as many cubic centimeters as they weigh in grammes. They can be made in other sizes and shapes, and of lighter or heavier material than indicated below.

Capacity, cc., about	20	25	35	50	65	75
Weight, grammes	6	8	12	17	22	25
Capacity, cc., about	100	125	150	175	200	250
Weight, grammes, about	33	42	50	55	67	80
Capacity, cc., about	300	350	400	500	600	700
Weight, grammes, about	94	117	133	175	200	225
Price, per gramme						

5447. Platinum Dishes.—Incinerating pans.
Capacity, cc., 15, weight about 10 grammes.
Capacity, cc., 20, weight about 14 grammes.
Price, per gramme



5446

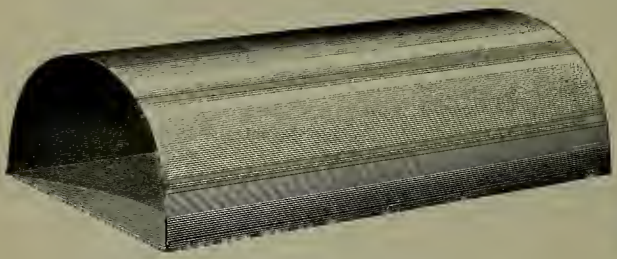


5447

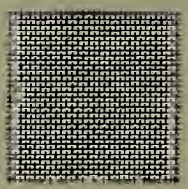


5451

5451. **Platinum Foil or Sheet.**—This varies in thickness from No. 12 to No. 33 of B. & S. gauge, also can be furnished in thickness of 1/1000, 2/1000, 3/1000, 4/1000, 5/1000, 10/1000, and 15/1000 of an inch.
Price, per gramme



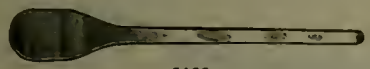
5461



5456

Platinum Gauze.—Can be made of any size of wire; the stock sizes are:
5456. 52 mesh of 4/1000 inch wire; per square inch, about .543 grammes;
5457. 45 " 85/10000 " " " " " " 1.500 "
Per gramme

5461. **Platinum Muffles.**—Seamless, made to order with one or both ends open, of any size or shape or weight; can be made with detachable top, allowing renewal of bottom when worn out.
Price, per gramme



5466



5478



5476



5492



5481

5463. Platinum Muffles.—Pieced, for sugar or milk analysis, enameling, etc. Made to order. Per gramme

5466. Platinum Spatulas.—All shapes, sizes and weights. They are made to order to sketch, ranging in weight from 3 to 15 grammes and more.
Price, per gramme

5471. Platinum Sponges.—For hydrogen lamps. Each$0 50

5476. Platinum Spoons.—For deflagrating, without covers, for blowpipe analysis.

Bowl, diameter, inches	¼	⅜	½	⅝	¾
Bowl, depth, inches	5/32	7/32	9/32	11/32	13/32
App. weight in grammes	0.9	2.	4.2	4.6	6.5

Per gramme

5478. Platinum Spoons.—For deflagrating, with cover of the same size, and approximate weight as the preceding. Per gramme.....

5481. Platinum Tips.—Seamless, for blowpipe use, of the actual size of the illustrations. Each

Platinum Tongs.—Of nickel-plated metal, about 8 inches long.

5486. With hollow platinum tip. Each
5487. With solid platinum tip. Each

Platinum Tweezers.—(See Forceps, No. 3714.)

5491. Platinum Triangles.—Solid joints, the weight and size of wire, as well as the size of crucible held by triangle, being as follows.

Size of crucible, cc.	10	15	20	30	40	60
Size of wire, inches	.045	.045	.055	.055	.064	.064
Weight, grammes	5	8	11	12	15	18

Per gramme

5492. Platinum Triangles.—Twisted joints, the weight and size of wire, as well as the size of crucible held by triangle, being as follows:

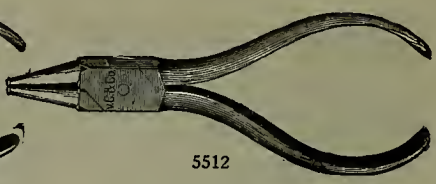
Crucible contents, cc.	10	15	20	30	40	60
Size of wire, inches	.045	.045	.055	.055	.064	.064
Weight, grammes	5	6	11	12	18	20

Per gramme

5496. Platinum Wire.—Of all sizes indicated on B. & S. American gauge, from No. 6 to No. 36. Per gramme



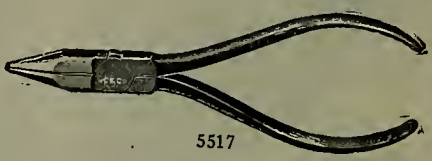
5511



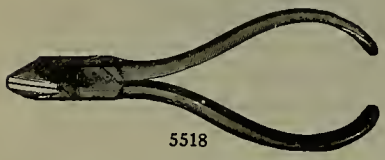
5512



5515



5517



5518

5511. **Plyers.**—With flat nose, for cupel button.

Length, inches	4	5	6	7	8
Each	$0.40	.50	.60	.75	.90

5512. **Plyers.**—With round nose, for cupel buttons, etc. Same prices as preceding.

Plyers.—With turned-down nose, for holding beads; 5 inches long.

5514. Heavy points, for silver buttons. Each $0 60

5515. Fine points, for gold buttons. Each 65

5516. **Plyers.**—Of steel, end-cutting nippers.

Length, inches	4	5	5½	6	6½
Each	$0.60	.70	.75	.85	.90

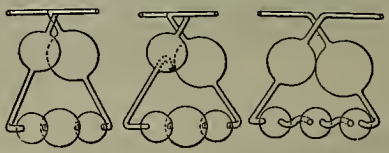
5517. **Plyers.**—Of steel, side-cutting nippers.

Length, inches	4	5	5½	6	6½
Each	$0.60	.70	.75	.80	.90

5518. **Plyers.**—Of steel, diagonal-cutting nippers.

Length, inches				5	6
Each				$0.75	.85

5520. **Plyers—Gas.**—8 inches long. Each $0 60



5536 5537 5538

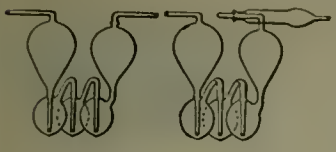
5526. Pokers.—Of iron, for furnaces. Each $0 25

5527. Pokers.—Of iron, 36 inches long, of ½-inch round iron. Each..... 50

5536. Potash Bulbs—**Liebig's.**—For drying gases. Each 50

5537. Potash Bulbs—**Liebig-Dittmar's.**—Each 75

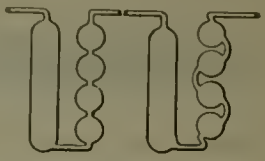
5538. Potash Bulbs—**Alvergnat's.**—Each 75



5539-5540

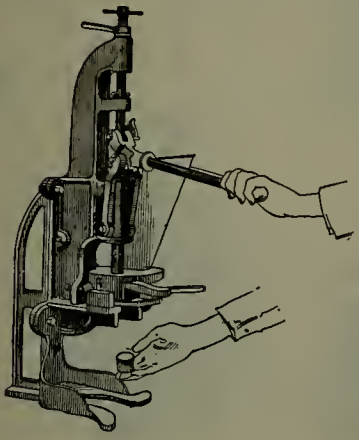


5541



5542-5543

5539. **Potash Bulbs—Geissler's.**—Each 80
5540. **Potash Bulbs—Geissler's.**—With $CaCl_2$ tube, ground in. Each 1 75
5541. **Potash Bulbs—Geissler-Wetzel's.**—Latest form. Each 1 75
5542. **Potash Bulbs—Mitscherlich's.**—Each 50
5543. **Potash Bulbs—Koeninck's.**—Each 50



5556

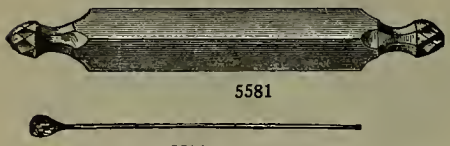


5571

5556. **Presses—Cupel—Advance Cupel Press.**—It has the following advantages over any other automatic cupel press in the ease and rapidity of adjustment of the degree of compression: A common toggle movement makes the compression, but a new point of resistance is offered the upper toggle by double levers and catch, which are made operative when the gate which covers the bottom of the mold is opened to allow the cupel to be discharged. The machine is so constructed that it can be fastened to the wall or bolted to a stand, thus making either a wall or table machine. Different sizes of cupels can be made by using bushings of desired size and die ends corresponding to them. Weight, complete, 70 lbs. Each $25 00
See catalogue of the Calkins' Specialties for full description.

5571. **Presses—Tincture.**—For pressing herbs, etc.

Capacity . .	1 qt.	½ gal.	1 gal.	2 gals.
Each . .	$3.75	5.00	7.50	10.00



5581

5591



5583

5581. Prisms.—Of crown glass, finely polished; angle of 60 degrees.

Length, inches	3	4	5	6	8
Each	$0.30	.40	.50	.60	.75

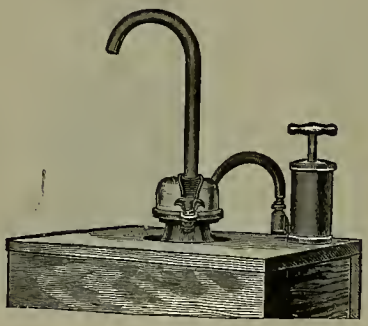
5583. Prisms.—Finely polished, square ends, wide face, angle of 60 degrees.

Length, inches	3	4	5	6	8
Each	$0.30	.40	.50	.60	.75

5591. Probangs.—For cleaning test tubes; a sponge at the end of a flexible rod.
Each $0 10



5601



5616



5618



5626

5601. Proof Glasses.—For taking samples of liquids from casks or tanks. Each.. 25

5611. Pulse Glasses. Each 1 25

5616. Pumps—Acid.—For drawing liquids from carboys; very substantial and effective. The bent tube is of glass, the balance of iron. Each $12 00

5618. Pumps—Acid.—An improved form, simple and very effective. Each 6 00

5626. Pumps—Air.—Of brass, with nickel-plated barrel, 1¼ inches diameter, with ⅛ ball nipple.

Length of barrel, inches	12	18
Each	$1.00	1.50

5628. Pumps—Air—Slant Floor Pump.—Of brass; barrel 1½ inches diameter, 22 inches long, base tapped with female screw thread parallel with floor line. Each. $2 50



5636



5629



5637

5629. **Pumps—Air.**—Barrel 16 inches long, 2⅛ inches diameter; mounted on cast-iron support, to be fastened to the floor. Each $6 00

5631. **Pump—Air—Vacuum and Pressure.**—With 16-inch barrel, 2⅛ inches diameter, with two valves and two nipples for inlet and outlet of air. Each.....

Pumps.—Of glass, for illustrating pump action.

5636. Lift pump; a complete model. Each $2 00

5637. Force pump; a complete model. Each 2 50

Pumps—Filtering.—(See Filtering Apparatus, etc.)

Pumps—Vacuum.

The **Geryk** Mechanical Air Pump for high vacua is of English make (Fleuss patent) and is of high efficiency.

There are no valves in the usual sense of the word; the pistons work in oil in such a way that a leak becomes impossible.

They are extremely simple, all working parts are practically frictionless and immersed in oil and there are no inside working parts to wear out, replace or adjust.

Very little power is required as there is practically no friction and the vacuum (equal to that of the Sprengel or Geissler pump) can be held for a very long time, so that the pump can be worked very slowly if desired.

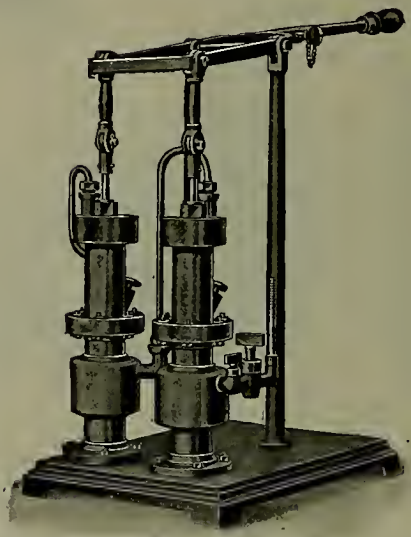
No vacuum gauge is required, as the point of release of air in the cylinder is an accurate measure of degree of vacuum.

This machine is very rapid and always ready for immediate use, even after months of idleness.

5641. **Pumps—Vacuum.**—Geryk No. 0, with 7-inch plate and vacuum gauge; cylinder, 1½ inches; piston stroke, 5 inches. Guaranteed vacuum within 0.3 millimeters of perfect vacuum. Each $45 00



5642

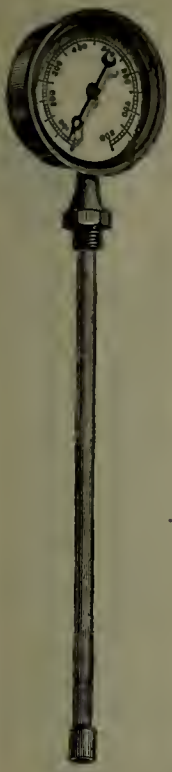


5646

5642. **Pumps—Vacuum.**—Geryk No. 1, with fly-wheel action, for hard laboratory service; without plate; cylinder, 2 inches; piston stroke, 5 inches. Guaranteed vacuum within 0.3 millimeters of perfect vacuum. Each $52 50

5643. **Pumps—Vacuum.**—Geryk No. 2. Similar to preceding, but with a 10-inch stroke. For large laboratories. Each $80 00

5646. **Pumps—Vacuum.**—Geryk Duplex No. 1 Specially designed for the rapid production of high vacuum. It has a 2-inch cylinder and 5-inch stroke. Each. $160 00



5656



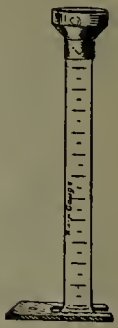
5657



5681



5691



5692

5656. Pyrometers.—For ascertaining temperature, up to 1200 Fahrenheit, of superheated steam, boilers, gases, ovens, furnaces, etc. The movement is of brass and German silver, and the hair string of phosphor bronze, and all are non-corrosive. The end of the stem is closed, and when immersed fully or partly in heat will indicate correctly. Vertical dial, 7 inches diameter; stem, 30 inches long; dial, 5½ inches. Each $25 00

5657. Pyrometers.—Similar to preceding, but with dial perpendicular to stem. Each $25 00

Racks.—(See Supports, No. 6436, and Filter Racks, No. 3556.)

5671. Racks—For Crucibles.—Of heavy sheet-iron, black japanned, to hold 10 crucibles while the assay is being mixed; each hole numbered. Each $2 50

5681. Radiometers—Crooke's.—Single. Each 1 25

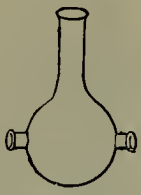
5691. Rain Gauges—Symmond's Form.—Each 3 00

5692. Rain Gauges—J. C. Model.—Divided into 1/100 of an inch, with plated top and support to keep it steady. Each $2 75

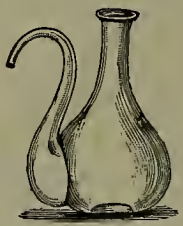
5693. Rain Gauges—U. S. Weather Bureau Model.—Of specially drawn brass tubing and best galvanized iron. Complete, with measuring stick. Each $3 00



5706



5710



5713



5716

Receivers—For Retorts.—Of glass, plain or stoppered.

	Capacity, ounces	4	8	16	32	64	1 gal.	2 gals.
5706.	Plain. Each	$0.15	.25	.30	.40	.50	.75	1.25
5707.	Stoppered. Each	.30	.40	.50	.60	.80	1.25	2.50

Receivers—For Retorts.—Of Resistance glass, that stands sudden changes of temperature and resists the action of corrosive chemicals.

	Capacity, ounces	4	8	16	32	64
5708.	Plain. Each	$0.20	.30	.37	.50	.75
5709.	Glass stoppered. Each	.35	.45	.65	.85	1.35

5710. **Receivers—Glass.**—With two tubulures on sides.

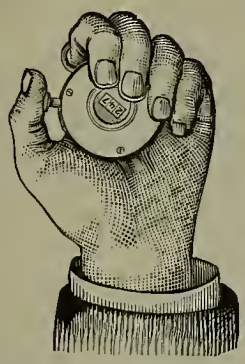
Capacity, ounces	8	16	32
Each	$0.50	.60	.80

5713. **Receivers—Florentine.**—For distillates.

Capacity, ounces	8	16	32	64
Each	$0.60	.75	1.25	2.00

Receivers.—For fractional distillation.

5716. Bredt's form, with two outlet tubes. Each $0 80
5717. Bredt's, with two outlet tubes and bulb. Each 1 00
5718. Bredt's, with three outlet tubes and bulb. Each 1 50



5726



5736

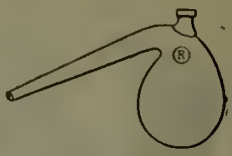
5726. **Registers.**—For counting and tallying; made entirely of metal; very serviceable. Each $3 00
5736. **Respirators.**—Mouth protectors, for preventing the inhalation of poisonous fumes in quicksilver mines, etc. Cover's patent, all rubber. Each $2 00
5737. **Respirators.**—Gibb's form, with metal frame, with leather edge. The air is inhaled through a filter composed of jute fibre placed in a receptacle for the purpose. Each $1 00



5746



5752



5754

5746. Retorts—Copper.—For the generating of oxygen; with iron clamp and brass delivery tube.

Capacity, pints	½	1	2	4
Each	$2.00	2.25	2.75	3.50

5751. Retorts—Glass.—Of best Bohemian; plain.

Capacity, cc.	60	125	250	500	1000
Capacity, ounces	2	4	8	16	32
Each	$0.12	.15	.25	.30	.40
Capacity, litres		2	3	4	8
Capacity, gallons		½	¾	1	2
Each		$0.50	.60	.75	1.25

5752. Retorts—Glass.—Stoppered.

Capacity, cc.	60	125	250	500	1000
Capacity, ounces	2	4	8	16	32
Each	$0.25	.30	.40	.50	.60
Capacity, litres		2	3	4	8
Capacity, gallons		½	¾	1	2
Each		$0.80	1.00	1.25	2.50

Retorts—Of Resistance Glass.—Which resists sudden changes of temperature and the action of corrosive chemicals.

Capacity, cc.	125	250	500	1000	2000
Capacity, ounces	4	8	16	32	64
5753. Plain. Each	$0.18	.30	.35	.48	.60
5754. Tubulated. Each	.28	.38	.50	.62	.90
5755. Stoppered. Each	.35	.48	.60	.90	1.25

Retorts.—Of Iena glass, resisting sudden changes of temperature and corrosive action of chemicals.

Capacity, cc.	50	100	250	500	750	1000
5757. Plain. Each	.15	.18	.25	.35	.45	.55
5759. Stoppered. Each	.38	.40	.50	.65	.75	.90

5761. Retorts—Iron.—With removable flat top, fastened by a screw clamp; with delivery tube for distilling mercury.

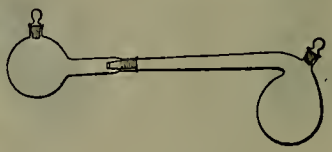
Capacity, pints	½	1	2	4	6
Weight, pounds	3½	6½	9	17	25
Each	$2.00	3.00	4.00	5.50	6.75
Capacity, pints		8	12	16	28
Weight, pounds		33	57	74	147
Each		$8.00	15.00	18.00	32.00



5761



5762



5776

5762. **Retorts—Iron.**—Nevada or oval top; with removable cover, ground to fit tightly into a conical slot in the lower piece, fastened with a wrought-iron strap and wedge. With delivery tube.

Capacity, pints	½	1	2	3	4	5
Holding quicksilver, pounds	6	12½	25	38	50	63
Weight, pounds	8	10	15	18	25	31
Each	$3.50	4.50	5.50	7.00	8.00	9.00

Capacity, pints	6	10	20	30
Holding quicksilver, pounds	75	125	250	375
Weight, pounds	44	65	140	180
Each	$10.50	12.00	22.00	30.00

5765. **Retorts—Porcelain.**—Glazed inside; with stopper.

Capacity, ounces	2	4	8	16
Each	$1.00	1.25	1.50	1.75

Retort Stands.—(See Supports, No. 6438, etc.)

5776. **Retorts and Receivers.**—Of Bohemian glass; both stoppered, the tube of retort fitting exactly into the neck of receiver.

Capacity, ounces	2	4	8	16	32
Each	$0.65	.75	1.00	1.50	2.00

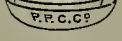
5778. **Retorts and Receivers.**—Like preceding, but of Resistance Glass.

Capacity, ounces	2	4	8	16	32
Each	$0.85	1.10	1.50	2.00	2.40

5786. **Retort Jackets or Condensers.**—For cooling the distillate from iron retorts.

Diameter outer tube, inches	1¼	1½	2	2½
Each	$2.00	2.25	2.75	3.25

Riders.—For Balances. (See page 44.)



5811





5816

5811. **Roasting Dishes.**—Of Battersea clay.

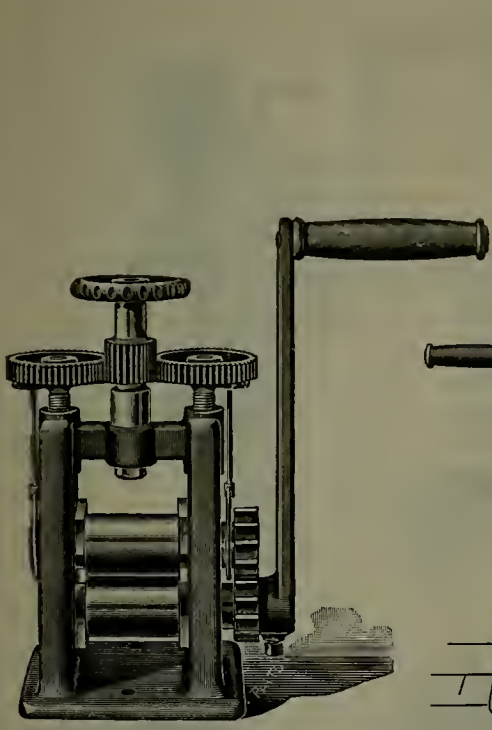
Diameter, inches	2½	3	4	5	6
Per dozen	$0.70	.80	.90	1.10	1.75

5816. **Roasting Dishes.**—Of Denver clay.

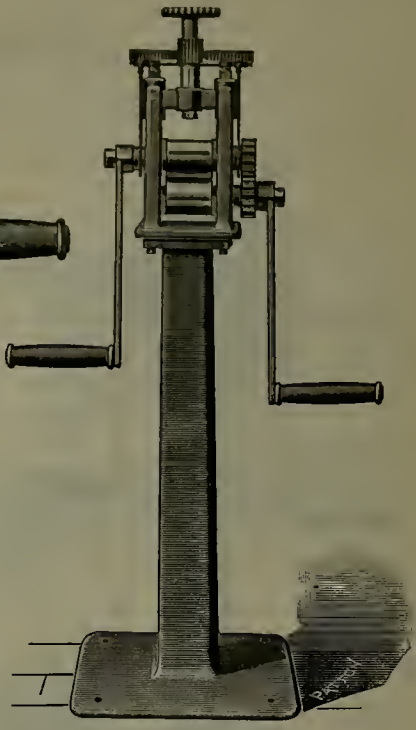
Diameter, inches	2½	3	4	5	6
Per dozen	$0.70	.80	.90	1.10	1.75

5818. **Roasting Dishes.**—Of black lead.

Diameter, inches	6	7	8	10
Each	$0.75	.90	1.10	1.25



5826



5827

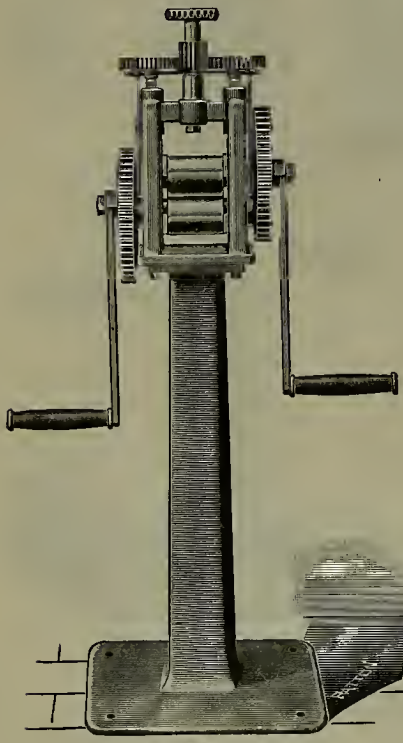
5826. Rolling Mills.—For metals. **The Crown,** a newly designed mill, with rolls 2 inches in diameter by 3 inches in length, perfectly hardened, ground and polished. Cut pinions of steel, geared pressure screws, improved lifting device without springs. The rolls can be quickly removed from frame. Weight, 45 lbs.
Price. Each $30 00

5827. Rolling Mills.—Hand, single geared; with flat rolls, very heavy. They have geared pressure screws, which, in connection with the patent lifting device, dispense with all springs and allow the raising and lowering of rolls by the center pinion. The rolls can be removed from frame without removing the boxes.

No.	2	3	4
Size, inches	1½x2	2¼x3	2¾x4
Weight, pounds	80	145	190
Each	$30.00	50.00	75.00

5828. Rolling Mills.—Hand, double geared. Similar in all respects to preceding in all other features.

No.	3	4
Size, inches	2¼x3	2¾x4
Weight, pounds	180	225
Each	$75.00	100.00



5828

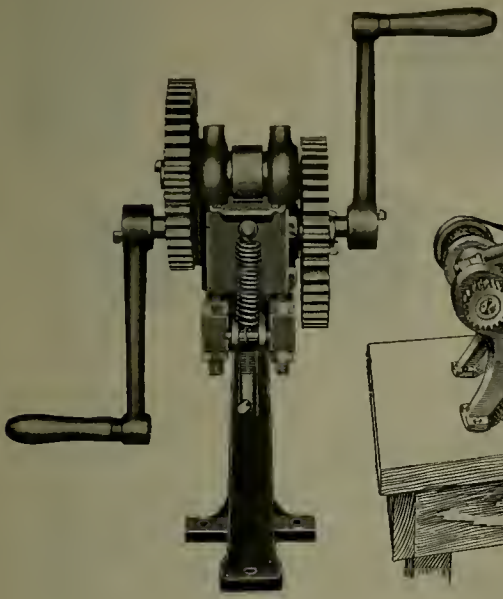


5831

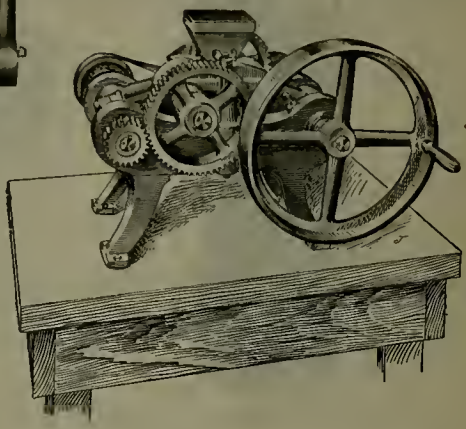


5831

5831. Rolling Mills—"Advance."—A highly finished model of bullion rolls; solid steel rolls, case hardened; gears are all cut and the bearings are of phosphor bronze. Double geared and with two handles; with adjustable feed plate. The position of the rolls can be changed in one minute so as to be fed either horizontally or vertically. The rolls are 2⅜ inches diameter, and 3¼ inches long, with a height over all of 42 inches. Weight, 85 pounds. Price $70 00



5833



5835

5833. **Rolling Mills—Calkins' Coronet Rolls.**—For assayers. Indispensable to all assayers doing bullion work. The best designed and constructed Coronet Rolls ever offered to the public. Diameter of rolls, 2⅜ inches; width of face of rolls, 1¼ inches. The rolls are made from the finest of tool steel, hardened and ground. This machine is double geared and supplied with two handles. All gears are cut, and the machine is so designed that by loosening two cap screws the head of the machine can be swung up into a vertical position, allowing the rolls to be fed either vertically or horizontally. This construction admits of the machine being fastened to a stand or bolted to the wall. Weight, 82 pounds. Net price $40 00

5835. **Rolls for Pulp—"Advance" Pulp Rolls.**—Specially designed for grinding ore samples to any fineness of mesh, without forming an impalpable product, taking the ordinarily coarsely crushed product of a rock-breaker. While samples made by the grinder or buckboard contain a certain amount of impalpable pulp that is entirely unfitted for a leaching or percolation test, these rollers prepare a suitable sample for such purposes. These rolls are geared and may be operated by hand or by machinery. Their capacity is large, the rolls being 6 inches in diameter, with 3½-inch face. As the rolls run at different speed, one going 5 per cent faster than the other, there is no caking of the pulp. The machine can be opened and cleaned in 30 seconds. Weight, 450 pounds. Price $90 00

5836. Automatic feeder attachment to fasten to hopper of the machine. Each. 10 00
See catalogue of the Calkins' Specialties for full description.



5846-5869



5871-3

5846. **Rubber Aprons.**—For laboratory use. Each 75
Rubber Bulbs.—(See Bulbs, No. 2471.)

5851. **Rubber Cloth.**—For sampling and mining ores, white or black.

Size, inches	18x18	24x24	36x36
Per sheet	$0.30	.40	.75

5852. **Rubber Cloth.**—Pure gum, for mixing pulp; cut to measure. Per pound...$3 50

5856. **Rubber Policemen, or Tips.**—To be attached to glass rod, for scraping precipitates from walls of beakers. Per dozen$0 50

5861. **Rubber Scrapers.**—For dressing amalgam plates of ½ inch; pure gum.

Size, inches	4x6	6x6
Each	$0.75	1.00

5866. **Rubber Sheeting.**—Very thin, for making stoppers air tight. Per ounce.....$0 50

5869. **Rubber Sleeves.**—For work in the laboratory. Per pair 35

5871-3. **Rubber Stoppers.**—Of best rubber solid (No. 5871), or perforated with 1 (No. 5872), or 2 holes (No. 5873).

No.	00	0	1	2	3	4
Diameter top, inches	½	11/16	¾	13/16	15/16	1
Diameter bottom, inches	⅜	½	9/16	⅝	11/16	¾
Per dozen, about	$0.35	.45	.50	.65	.90	1.00

No.	5	6	7	8	9	10
Diameter top, inches	1⅛	1¼	1½	1⅝	1 13/16	2
Diameter bottom, inches	⅞	1	1⅛	1 5/16	1 7/16	1⅝
Per dozen, about	$1.25	1.75	2.25	3.00	3.50	4.50



5874-6



5881

5874-6. Rubber Stoppers.—Of pure Para gum, without any adulteration. Solid (No. 5874) or perforated with 1 (No. 5875), or 2 holes (No. 5876).

No.	00	0	1	2	3	4
Diameter top, inches	9/16	5/8	3/4	13/16	15/16	1
Diameter bottom, inches	3/8	7/16	9/16	5/8	3/4	13/16
Per dozen, about	$0.25	.35	.55	.70	.85	1.00

No.	5	6	7	8	9	10
Diameter top, inches	1 1/16	1 1/4	1 7/16	1 5/8	1 3/4	2
Diameter bottom, inches	15/16	1 1/16	1 3/16	1 3/8	1 7/16	1 3/8
Per dozen, about	$1.25	1.50	1.80	2.50	3.00	3.75

N. B.—Rubber stoppers are actually sold by weight, and the prices above are only approximate and liable to vary with the market. Large sizes are made to order. When ordering, state whether stoppers are to be solid or with one or two perforations.

Rubber Tubing.—For connections; of best quality; white, with light or heavy walls.

	Diameter inside, inches	1/8	5/32	3/16	1/4	5/16
5881.	Per foot, light	$0.02	.02½	.02½	.03½	.04
5882.	Per foot, heavy	...		.03½	.05	.06
	Diameter inside, inches	3/8	1/2	5/8	3/4	
	Per foot, light	$0.05	.06			
	Per foot, heavy	.07	.08	.11	.14	

Rubber Tubing.—Red or antimony.

	Inside diameter, inches	1/8	5/32	3/16	1/4
5884.	Per foot, light	$0.06	.08	.11	.14
5885.	Per foot, heavy	.08	.10	.13	.18
	Inside diameter, inches		5/16	3/8	1/2
	Per foot, light		$0.16	.22	.30
	Per foot, heavy		.20	.25	.40

5886. Rubber Tubing.—Red; very heavy, for vacuum pumps.

	Inside diameter	1/4	3/8
	Per foot	$0.25	.37

Rubber Tubing.—Of pure black gum; very flexible and especially adapted for laboratory work.

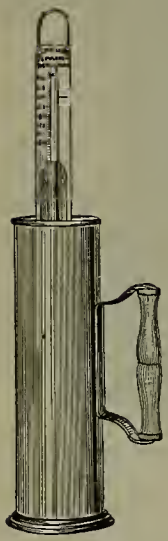
	Inside diameter, inches	1/8	3/16	1/4	5/16
5887.	Per foot, light wall	$0.04½	.08	.10	.12
5888.	Per foot, heavy wall	.06	.10	.14	.20
	Inside diameter, inches		3/8	1/2	5/8
	Per foot, light wall		$0.14	...	...
	Per foot, heavy wall		.25	.40	.60

5889. **Rubber Tubing.**—Of pure black gum, extra heavy, for pressure.

Inside diameter, inches	3/16	¼	⅜
Per foot	$0.20	.25	.40

Rules.—(See Measures, No. 4836.)

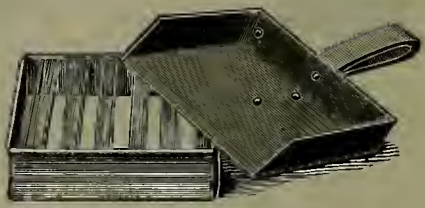
5896. **Rupert Drops.**—Per dozen $0 40



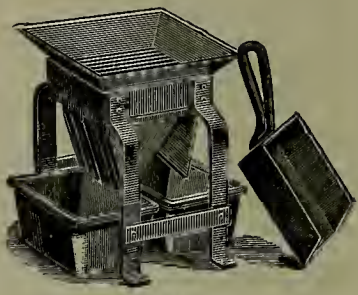
5911



5921



5931



5936

Saccharometers.—(See Hydrometers, No. 4361.)

5911. **Salinometer Pots.**—For sea water hydrometers; of tin-lined copper, with handle; 10 inches high, and 2½ inches diameter. Each $2 75

Samplers—Ore.—Of tin, to get fair samples.

5921. 8 x 8½ inches, with 6 troughs ½ inch wide. Each 50

5922. 9 x 10 " " 6 " ¾ " " " 75

5923. 9 x 12 " " 5 " 1 " " " 75

Samplers—Ore.—Of tin, with handle.

5924. Size, 6 x 8½, with 6 troughs ½ inch wide. Each 75

5925. " 7 x 9 " 14 " ¼ " " " 1 00

5926. " 9 x 12 " 10 " ½ " " " 1 00

5927. " 11 x 12 " 8 " ¾ " " " 1 00

Samplers—Ore.—Of tin, with handled scoop, with troughs ½ inch wide.

5931. Size, 6 x 6, with 6 troughs. Each 1 35

5932. " 9 x 9, " 9 " " 1 75

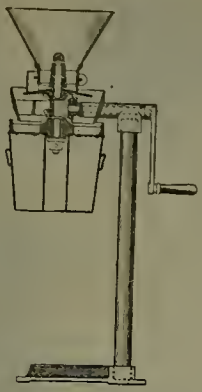
5933. " 12 x 12, " 12 " " 2 25

5936. **Samplers—Ore—Jones'.**—For rapid and even sampling; easily cleaned. Four pans and a brush furnished with each sampler.

Size, inches	4x4	6x6	10x10
Troughs, inches	½	½	¾
Each	$8.00	10.00	15.00



5941



5941



5997



6011

5941. **Samplers—Ore—Challenge.**—The most efficient machine ever produced for the absolute accurate sampling of large quantities of ores. By its use a sample of 100 pounds can be cut down to 8 ounces. All working parts can be removed, cleaned and reassembled in less than a minute. The feed hopper holds 50 pounds. The samples are absolutely uniform in weight, volume and value in the opposite quarters of the closed compartments.
Height, 44 inches; weight, 65 pounds. Price $30 00
See catalogue of the Calkins specialties for full description.

Sand Baths.—(See Baths, Sand, No. 1881.)
Sand Glasses.—(See Hour Glasses, No. 4196.)

5956. **Sand Paper.**—For cleaning wood parts. Per dozen sheets..... $0 25

5966. **Saws—Charcoal.**—For making slabs. Each 35

5976. **Scales—Architects'.**—Of boxwood, triangular shape, divided into 1/16 inch, and also to scale of ⅛, ¼, ⅜, ½, ¾, 1, 1½, 2, 3 and 4 inches to the foot; 24 inches long. Each $5 00

5977. **Scales—Architects'.**—Similar to preceding, but with 3/16 and 3/32 inch to the foot, instead of 2 and 4 inch. Length, 12 inches. Each $2 00

5981. **Scales—Surveyor's.**—Of boxwood, triangular shape, with scale of 1 to 10, 20, 30, 40, 50 and 60.

Length, inches	6	12	24
Each	$1.50	2.00	5.00

5991. **Scissors.**—Of best steel, for pocket use. Each $0 50

5992. **Scissors.**—For trimming lamp wicks. Each 40

5996. **Scissors.**—Shears, heavy, for cutting metal, Snip Shears; of polished steel.

Length, inches	6	7½
Each	$1.10	1.25

5997. **Scissors.**—Shears for cutting metal, Tinners' Shears.

Length of cut, inches	2½	3	3½	4
Each	$1.50	2.00	2.50	3.00

5999. **Scissors.**—Hand Shears, for cutting paper, etc.

Length, inches	10	11	12
Each	$0.80	1.00	1.20

6011. **Scoops.**—Aluminum. Each $0 35


6016


6018


6026


6027



6036

6016. **Scoops.**—Horn, flat end, wide shape.

Bowl, inches	3¼x2½	3¾x2¾	4¼x3¼	4½x3½
Each	$0.10	.12	.16	.18

6018. **Scoops.**—Horn, spoon shape.

Bowl, inches	2x4	2¼x4¾	3x5¼
Each	$0.08	.10	.12

6023. **Scoops—Crucible Filler.**—For pouring fluxes or ore into crucibles while in the furnace. Bowl, 3 x 17 inches. Each $0 75

6026. **Scoops—Sampling.**—Of heavy sheet iron. Also used for amalgam or quicksilver in sluices; with handle.

Size of pan, inches	5½x4½	8x5
Each	$0.40	.50

6027. **Scoops—Sampling.**—Of sheet Russia iron, without handle.

Size of pan, inches	5x4½	5x3½
Each	$0.30	.25

6029. **Scoops—Sampling.**—Of sheet iron, with band iron handle, used in connection with Samplers No. 5931.

Size, inches	6x8½	7x9	9x10	9x12	12x12
Each	$0.40	.45	.50	.60	.70

6031. **Scoops—Scale.**—For amalgams, etc. Of heavy sheet iron, 14 inches long, 8½ inches wide and 5½ inches deep, with counterpoise weight. Each..... $4 00

6036. **Scorifiers.**—Battersea Clay.

Diameter, inches	2¼	2½	2¾	3
Per 100	$1.20	1.30	1.60	2.00


6041

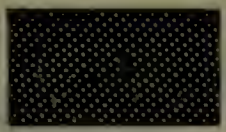
6041. **Scorifiers.**—Denver Clay.

Diameter, inches	2	2¼	2½	2¾	3	3½
Per 100	$1.20	1.20	1.30	1.60	2.00	2.50

6051. **Scrapers.**—For muffles and hearths, flat, 36 inches long. Each $0 60

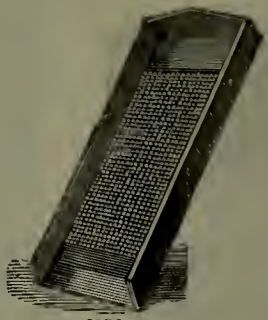
6052. **Scrapers.**—Like preceding, but bent. Each 60


6063


6066


6064


6071


6076

6061-4. **Screens—Battery.**—Of Russia iron. These screens are made in four different styles, which are measured the same, and which are of the same prices.
No. 6061 is Horizontal Burred Slot.
No. 6062 is Horizontal Punched Slot.
No. 6063 is Angle Burred Slot.
No. 6064 is Angle Punched Slot.
They are marked and known as follows:

No.	3	4	5	6	7
Equal to wire mesh	15	20	25	30	35
Per square foot	$0.60	.60	.60	.60	.60
No.	8	9	10	11	12
Equal to wire mesh	40	45	50	55	60
Per square foot	$0.60	.65	.70	.75	.80

6066. **Screens—Battery.**—Of Russia iron, needle punched.

No.	1	2	3	4	5	6	7	8	9
Equal to wire mesh	15	20	25	30	35	40	45	50	55
Per square foot	$0.65	.65	.65	.65	.65	.65	.65	.75	.80

6068. **Screens—Battery.**—Tin, with round perforations. Made in three sizes, called Nos. 1, 2 and 3, equal respectively to wire mesh 35, 24 and 14.

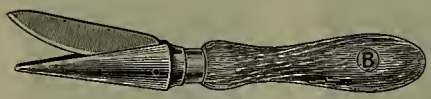
Size, inches	10x14	14x20
Per dozen	$2.00	4.00

6071. **Screens—Ore and Coal and Sand.**—With parallel wires. These screens are very durable, the wires being locked in place by a new method and remaining true to gauge until it is worn out. The distance between center and center of wires can be made of any of the following sizes: ⅛, 3/16, ¼, ⅜, ½, ⅝, ¾, 1 inch.
Each $10 00

6076. **Screens—Ore and Coal and Sand.**—With square mesh.

Size of mesh, inches	¼	⅜	½	⅝	¾
Each	$14.00	14.00	14.00	14.00	14.00
Size of mesh, inches	⅞	1	1¼	1½	2
Each	$14.00	12.00	12.00	12.00	12.00

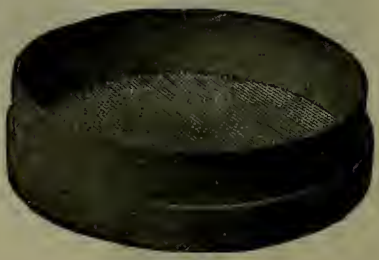
(See also Sieves and Wire Cloth.)



6081



6098



6096

6081. **Sharpeners.**—For cork borers; a steel cone with blade. Each.....$1 00

6086. **Shovels.**—For coal or wood furnaces. Each$0 25

6096. **Sieves.**—For sampling ores, etc.; wood frame, brass wire cloth.

Mesh	10	20	24	30	40	50
6 inches in diameter. Each	$0.60	.60	.60	.60	.60	.60
8 " " " "	.65	.65	.65	.65	.70	.75
10 " " " "	.80	.80	.80	.85	.95	1.00
12 " " " "	1.00	1.00	1.10	1.20	1.30	1.45

Mesh	60	70	80	90	100
6 inches in diameter. Each	$0.65	.70	.75	.85	1.00
8 " " " "	.80	.85	1.00	1.15	1.25
10 " " " "	1.10	1.20	1.40	1.50	1.75
12 " " " "	1.60	1.70	1.85	2.00	2.25

Mesh	120	150	200
6 inches in diameter. Each	$1.20	1.75	2.25
8 " " " "	1.50	2.50	3.50
10 " " " "	2.00	3.25	5.00
12 " " " "	2.75	4.50	6.00

6098. **Sieves.**—For sampling; tin frame, brass wire cloth, pan bottom and cover.

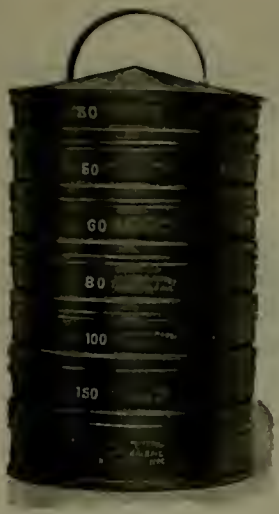
Mesh	10	20	24	30	40
5 inches diameter. Each	$0.90	.90	.95	.95	.95
8 " " "	1.05	1.10	1.20	1.25	1.25

Mesh	50	60	70	80	90
5 inches diameter. Each	$1.00	1.10	1.15	1.20	1.25
8 " " "	1.30	1.40	1.40	1.50	1.65

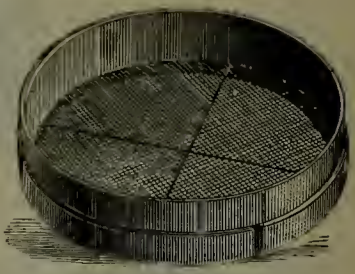
Mesh	100	120	150	200
5 inches diameter. Each	$1.40	1.65	1.75	2.50
8 " " "	1.75	2.25	3.00	4.50



6100



6101



6103

6100. **Sieves.**—Tin frame, brass wire cloth; in nests or sets of five; 20, 40, 60, 80 and 100 mesh; with one cover and bottom pan.

Diameter, inches	5	8
Each	$5.00	6.75

6101. **Sieves.**—Standard sieves, brass gauze and brass frame, 8 inches diameter. Made in accordance with specification of American Society of Civil Engineers, the requirements of the Association of Portland Cement Manufacturers, and American Society of Testing Materials.

10 mesh	$3 00
20 "	3 00
30 "	3 00
40 "	3 30
50 "	3 30
60 "	3 75
80 "	4 00
100 "	4 50
120 "	4 75
150 "	5 00
200 "	5 90
Brass pan and cover, extra	2 25

Sieves.—Wood frames, of heavy iron, **Riddles**, for foundry use, etc. Made of any mesh between 2 and 20. Diameter, 18 inches.

6103. Iron wire. Each $0 85

6104. Brass wire. Each 1 70

These can be made to order of any size of wire and mesh, as also of any diameter.

(See also Screens and Wire Cloth.)

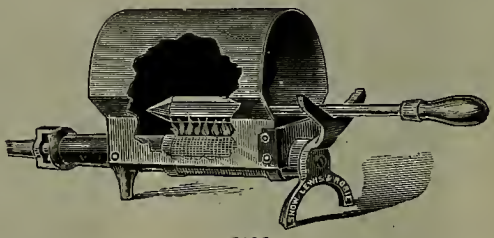
Silica Ware

See Nos. 7366 to 7396, page 254.

6111. **Skimmers.**—For crucibles, 36 inches long. Each $1 00

6121. **Soldering Coppers.**—With handles.

Weight, hounds	1	1½	2
Each	$0.50	.75	1.00



6126



6136



6140



6141

6126. **Solder Iron Heaters.**—For gas. Each $1 75

6136. **Spatulas—Horn.**—For mixing, of best quality.

Length, inches	6	7	8
Each	$0.12	.15	.20

6140-2. **Spatulas—Porcelain.**—Single (6140) or double end (6141) or with cup (6142).

Length, inches	5	6	7	8
Each	$0.35	.40	.45	.50



6144



6146

6144. **Spatulas—Steel.**—Wood handle, highly polished; for mixing and dividing.

Length of blade, inches	3	4	5	6
Each	$0.40	.45	.50	.55
Length of blade, inches	7	8	10	12
Each	$0.60	.75	1.00	1.50

6146. **Spatulas—Steel.**—Nickel plated, steel handles.

Length of blade, inches	4	5	6
Each	$0.50	.55	.60

6148. **Spatulas—Solid Nickel.**—With spatula on both ends.

Length, inches	5	6	7	8
Each	$0.40	.50	.60	.80



6161



6188



6191

6161. **Spectroscopes.**—Direct vision, pocket size, 10 cm. in length, 15 mm. diameter. A series of tubes mounted in an adjustable brass tube, with adjustable slit; in leather case. Each $18 00

6176. **Sponges.**—For mills, for cleaning plates. Per pound 1 50

6181. **Spoons.**—Blowpipe, of bone. Each 15

6182. **Spoons.**—Blowpipe, of brass. Each 25

6183. **Spoons.**—Blowpipe, of ivory. Each 25

6185. **Spoons.**—Pulp; of brass, double ends; bowls of ¾ and 1 inch. Each 50

6186. **Spoons.**—Pulp; of copper; bowls ½ by ¾ inch. Each 50

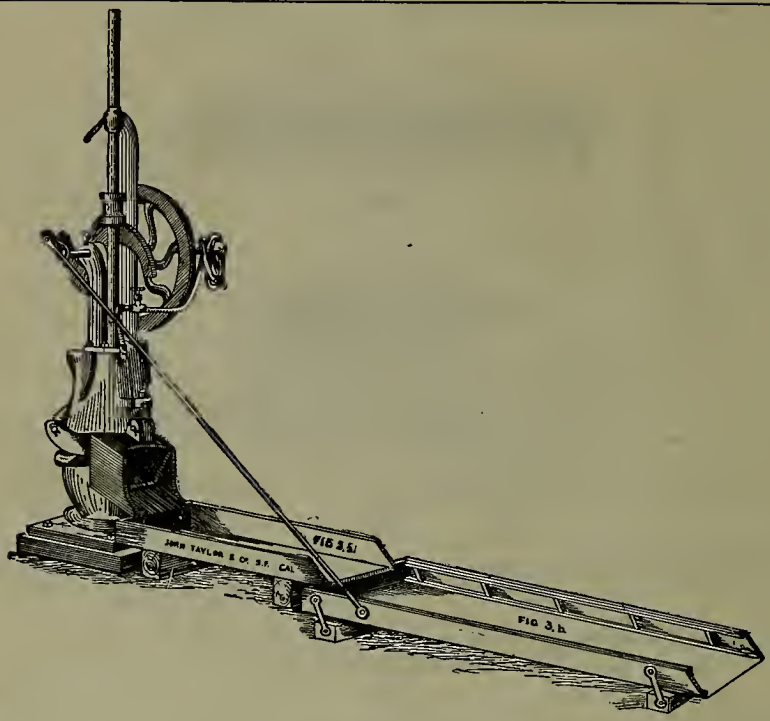
6188. **Spoons.**—Horn, for pulp and fluxes.

Size of bowl, inches	1x½	1x¾	1½x1	2x1¾	2½x1½	3½x2
Each	$0.06	.08	.09	.12	.15	.17

6191. **Spoons.**—Deflagrating; made of heavy iron for burning phosphorus in oxygen.

Bowl, diameter, inches	½	1
Each	$0.25	.25

6193. **Spoons.**—Granulating, for sampling bullion; 1½-inch bowl, 4½ feet long. Each $1 50



6206

6206. Stamp Mills.—Portable, one-stamp. A simple, cheap and effective one-stamp mill, which can be easily carried from place to place, and which enables the miner to state whether it is profitable to erect a large mill. Very simple in construction. The mortar is circular in horizontal section, and oval in vertical section; eight inches diameter inside, the shoe and die being four inches diameter. The stamp rod, with tappet and shoe, weighs 45 pounds, and drops 6½ inches with a force of about 750 pounds. The discharge at the front is six inches square, and a screen is here inserted by wedge as usual. The upper and lower parts are fastened together by a hinge pin and hinge bolt; by loosening bolt of latter, the upper part of mortar and all its belongings can be turned over to rest on the ground. This facilitates rapid cleaning up, and when the hinge pin is withdrawn, the upper half is entirely removed, thus making the mill portable. The two parts are made water-tight by inserting a rubber gasket between them. The cam shaft is supported by two iron columns, one of which projects above the shaft and acts an an upper bearing for the stamp rod. Here a screw is placed, which holds fast the lifted stamp rod when cleaning up. Five sheet iron, slot-punched screens are furnished with the mill of Nos. 4, 5, 6, 7 and 8 screen, equivalent to Nos. 20, 24, 30, 35 and 40 of brass wire screens.
The stamp mill weighs about 405 lbs., the two parts being of equal weight.
Price of mill alone $100 00

6207. Sluice box, 10 inches wide, 60 inches long. Each 2 00

6208. Silver-plated copper plate, 10x60 inches, with brass screws to fasten it to box, about $10 00



6231



6232

6209. Sluice box, 15 inches wide, 9 feet long with fastenings for the blanket, cradle and links to give it a reciprocating motion $10 00

6210. Sluice blankets, 15 inches by 9 feet 3 00

6211. Extra shoes. Each 3 00

6212. Extra dies. Each 1 50

6213. Extra rods for stamp 3 00

6214. 2 pillow blocks, babbitted, with 4 bolts 3 75

6215. Extra pulleys, 10 in. diameter 2 50

6216. 2 steel pulleys (fast and loose), 12 inches diameter, for driving by power 6 50

6217. Leather belt, 15 feet long, 2 inches wide 3 50

6218. Extra collars, with set-screw 75

6219. Couplings, for connecting two mills 3 50

Stamps—Steel.—For marking bullion, in sets; well tempered; in wooden cases.

Size, inch	1/16	⅛	3/16	¼
6231. Letters, per set	$1.75	1.75	2.50	3.00
6232. Figures, per set	.60	.60	.80	1.00
Size, inch	5/16	⅜	7/16	½
Letters, per set	$3.50	5.00	6.50	8.50
Figures, per set	1.20	1.60	2.40	3.00

Stamps—Steel.—In one piece, for marking bullion.

Size, inches	⅛	3/16	¼	5/16	⅜
6233. Gold	$1.50	2.00	2.75	3.00	3.50
6234. Silver	2.25	2.50	3.00	3.50	4.00
6235. Fine	1.50	2.00	2.75	3.00	3.50
6236. Value	2.25	2.50	3.00	3.50	4.00
6237. Total	2.25	2.50	3.00	3.50	4.00
6238. No.	1.00	1.00	1.50	1.75	2.00
6239. Oz.	1.00	1.00	1.50	1.75	2.50
6240. $	.75	.75	1.25	1.50	1.75

Steel Stamps.—With the name of mine or assayer, in one piece, made to order in any size or style.

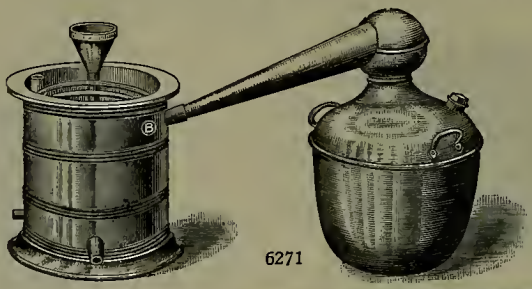
Stands.—(See Supports, No. 6426.)

Sterilizers.—(See Apparatus, Sterilizing, No. 1651.

6256. **Stirrers.**—Of glass, with rounded ends, of all sizes. Per pound $0 75

6261. **Stirrers—Black Lead.**—For stirring in crucibles.

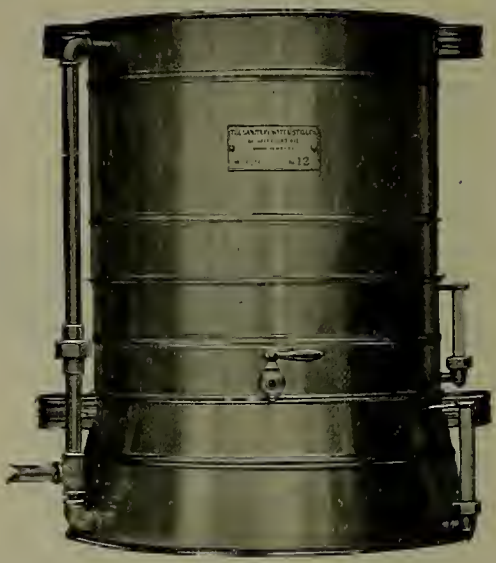
Length, inches	8½	14½	17
Each	$0.50	.70	1.00



6271



6276



6278

6271. **Stills.**—Copper, block tin lined, with movable head for distilling water, etc. With condenser, having block tin worm.

Capacity, gallons	½	1	2	3	5
Complete, each	$9.00	12.00	14.00	16.00	25.00
Still only, each	6.00	8.50	9.00	10.00	18.00

Stills—Household.—The latest pattern, endorsed by the Ralston Health Club, giving pure distilled water, fully aerated. The construction is such that all impurities are eliminated and the air is washed and sterilized by a spray of superheated steam and water, and then by mechanical action forced upward into the condensing chamber. The apparatus can be very easily cleaned. The reservoir holds two quarts of distilled water.

6276. No. 90, polished tin finish. Each $10 00

6277. No. 92, silver plated, highly polished. Each 12 00
(See back of cover.)

6278. **Stills—Bailey & Lund—No. 12 Automatic.**—This still is built upon the same principle as the two preceding models, differing from them in size, the boiler being 14½ inches in diameter. This boiler is filled from the overflow of the

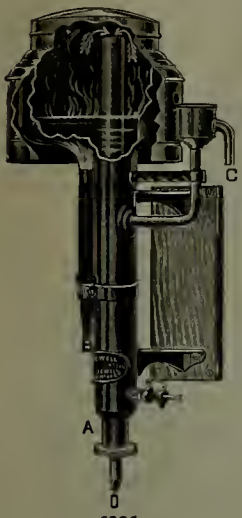
condensing chamber on the top, thus obviating any necessity for taking the still apart when desiring to add water to the boiler. A small glass gauge is placed on the side of the distilled water reservoir so that the quantity of distilled water may be noticed at a glance. The operation of this still is the same as that of the two preceding models. Capacity, ¾ gal. per hour. Each.....$17 00

6285. **Germ-Proof Aerating Caps.**—Fitting old-fashioned Mason fruit jars, with perforated bulb on top; this bulb is filled with absorbent cotton, and allows free access of air to and from the water, but arrests the passage of dust and bacteria. These caps are heavily plated with silver. Each, $0.25. Per dozen.....$2 00

Stills—Jewell's Automatic Water Still.—For water; capacity, ½ gallon per hour; complete, with brass gas and water cocks; block tin pipe water connections and adjustable bracket for holding receptacle for the distilled water. Bunson burner with special gauze tip; all parts easily accessible for cleaning.

6286. Style No. 3, of cast iron. White enamel in and out.....$25 00

6287. Style No. 4, of tin-lined copper, nicked plated. Each 25 00



6286



6291

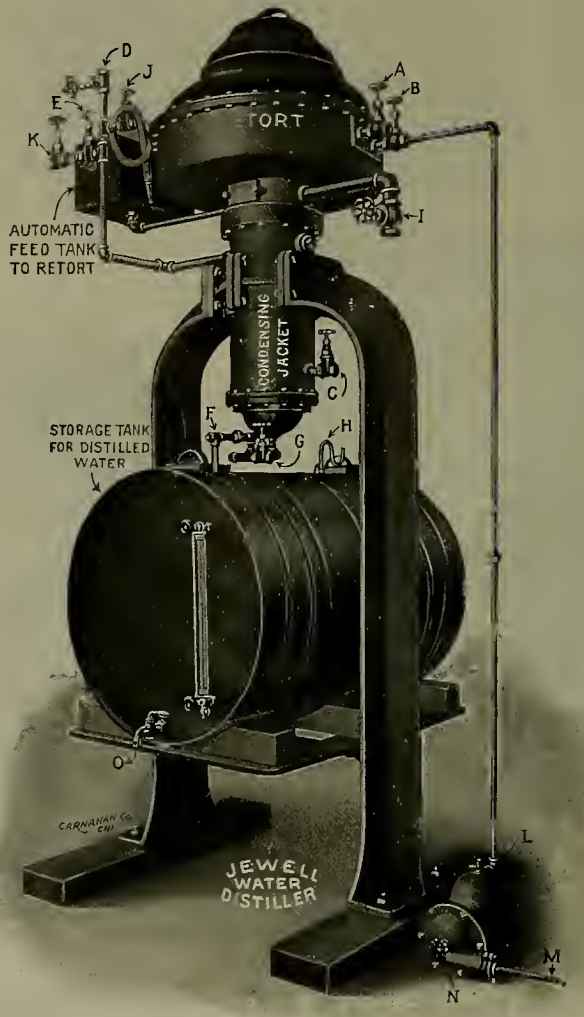
Stills—Jewell's Automatic.—Of cast-iron, with nickel-plated copper boiler, block tin lined, and with tin condenser tube. All parts easily accessible for cleaning.

6288. Capacity, 1 gal. per hour. Each$48 00

6289. Capacity, 1½ gal. per hour. Each 65 00

6291. Capacity, 2 gal. per hour, with tilting crated bottle. Each.....115 00

Stills—Jewell.—The distilled water is produced by the action of a continuous supply of steam, with a continuous flow of water. These stills are of the very best material and workmanship, the dome of the boiling chamber being of copper lined with block tin, the evaporating coil being also of tin-lined copper. All the necessary accessories are furnished with the apparatus: Pipe connections, valves, shut-off, etc.



6292

6292. Size No. 7, capacity per hour, 20 gals. each.

6293. Size No. 8, capacity per hour, 50 gals. each.

Prices quoted on application, as these stills are imported to order only.



6301



6302

Stills—Salleron.—For testing the alcohol in wines, beers, brandies, etc. They are very accurate and convenient and are furnished with printed instructions and tables for correction.

6301.	Small size, glass boiler, 2 hydrometers. Each	$12 00
6302.	Large size, copper boiler, 2 hydrometers. Each	16 00
6309.	Extra thermometers (G). Each	1 25
6310.	Extra hydrometers (F). Each	1 50
6311.	Extra pipettes. Each	15
6312.	Graduated jars (L), large. Each	1 25
6313.	" " small "	1 00

(See also Wine Test Apparatus, No. 7261.)

6316. **Stopcocks—Brass.**—With both ends smooth, for connections; ¼-inch bore. Each $0 40

6317. **Stopcocks—Brass.**—With grooves at both ends, for tubing.

Bore, inches	⅛	¼
Each	$0.65	1.00


6317


6318


6319


6320


6321


6322


6331


6332


6336


6337


6338


6339


6340


6343

Stopcocks—Brass.—With groove at one end for tubing, and screw thread at the other.

	Bore, inches	⅛	¼
6318.	Groove and male screw. Each	$0.75	1.00
6319.	Groove and female screw. Each	.75	1.00

Stopcocks—Brass.—With screw threads at both ends.

	Bore, inches	⅛	¼
6320.	With double male screw. Each	$0.75	1.00
6321.	With double female screw. Each	.75	1.00
6322.	With male and female screw. Each	.75	1.00

Stopcocks—Brass—Nipples.—With ⅛-inch bore.

6326.	With grooves and male screw. Each	$0 25
6327.	With grooves and female screw. Each	25

6331-2. **Stopcocks—Earthenware.**—For acids.

Bore, inches	¼	½	¾	1	1¼	1½	2
Each	$2.00	2.50	3.75	3.75	4.50	5.00	6.00

6336. **Stopcocks—Glass.**—Faucet shape, heavy.

Bore, mm.	4	6	8
Each	$1.25	1.50	2.00

6337. **Stopcocks—Glass.**—Faucet shape, light.

Bore, mm.	1	2	3	4	5	6	8	10
Each	$0.90	1.00	1.25	1.65	2.25	2.50	3.50	6.00

Stopcocks—Glass.—Geissler's light.

Bore, mm.	1	2	3	4	5	6
6338. Straight form. Each	$0.90	1.00	1.25	1.65	2.25	2.50
6339. 3-way form. Each	1.25	1.50	1.75	2.25	3.00	
6340. 4-way form. Each	1.50	1.50	2.00	2.50	3.00	



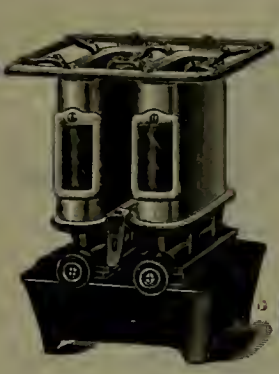
6344



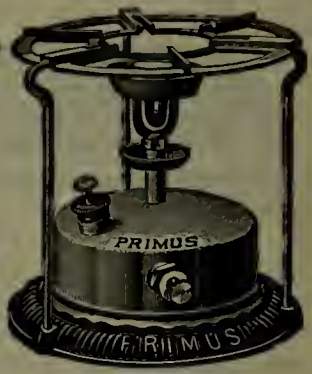
6345



6372-3



6372-3



6376

6343. **Stopcocks—Glass.**—Geissler's new form, of light glass, with the plug bored at an angle, straight form.

Bore, mm.	1	2	3	4	5
Each	$1.25	1.50	1.75	2.00	2.50

Stopcocks—Glass.—Geissler's new form, with plug bored at angle, and three-way outlet.

Bore, mm.	2	3	4
6344. With downward outlet. Each	$2.00	2.25	2.75
6345. With horizontal outlet. Each	2.00	2.25	2.75

6356. **Stopcocks—Porcelain.**—For acids, etc.

Bore, inches	⅜	½	¾
Each	$2.00	2.25	2.50

6361. **Stopcocks—Rubber.**—Of hard rubber; for gas bags, with ⅛-inch bore. Each $1 00

6371. **Stoves—Coal Oil.**—With one burner, large cast-iron tank, nickel-plated cones, seamless wick-holder and removable brass burner. Each $1 25

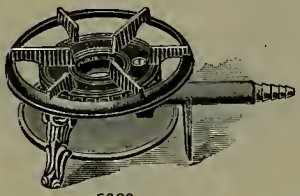
6372-3. **Stoves—Coal Oil.**—With cast-iron cistern; with 4-inch wicks.

No. of wicks	1	2
Each	$1.25	2.25

6374. **Stoves—Coal Oil.**—Fairy Queen; with glass cistern.

No.	1	2	3	3½
Number of wicks	1	2	3	3
Width of wick, inches	3	3	4	4
Each	$2.25	3.00	4.00	5.00

6376. **Stoves—Coal Oil.**—Primus; generating a gas automatically from the kerosene; odorless and smokeless. Capacity, 1 quart; height, 8¾ inches; top, 8¾ inches across. The lamp can be used separate from the frame, if desired. Each . . . $5 00



6380



6381



6382



6401



6402

Stoves—Gas—Hot Plates.—Nickel-plated finish, with tube for connection to gas pipe.

6380. Round shape, 4-inch burner, 6½-inch top. Each $0 60

6381. Single burner, 3½ inches; top, 9½x9½ inches; height, 4 inches. Each..... 2 25

6382. Double burner, 3½ inches; top, 19x9½ inches; height, 4 inches. Each..... 2 75

6391. **Strainers—Amalgam or Quicksilver.**—Of heavy duck, with iron rings and hood outside to prevent loss.

Diameter, inches	6	10	12
Each	$0.90	1.25	1.50

6392. **Strainers—Amalgam.**—Of duck, without ring or hood.

Diameter, inches	6	10	12
Each	$0.50	.65	.75

Straining Dishes.—Of porcelain, with perforated bottom, for straining crystals, etc.

Diameter, inches	4¼	5½	6¼	7½
6401. Flat form. Each	$0.75	.90	1.00	1.25
6402. Round form. Each	.50	.60	.80	1.00

Diameter, inches	9	11	12
Flat form. Each	$1.65	2.00	2.50
Round form. Each	1.35	1.65	2.00

6411. **Streak Plates.**—For mineralogists; of porous porcelain.

Size, inches	3x1½	4x1½
Each	$0.20	.30

Supports.—For burettes; of iron, with triangular base, and iron clamps.

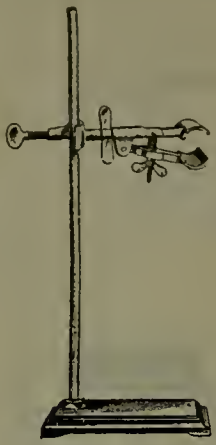
6426. With one clamp. Each $0 90

6427. With two clamps. Each 1 40

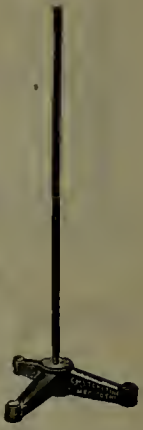
6428. **Supports.**—For two burettes; of iron, with Bunsen's universal motion clamp. Each $1 25



6429



6430



6445



6436



6437



6442

6429. Supports.—For two burettes; of iron, with one Hoffman double clamp.
Each $1 25

6430. Supports.—Iron, for condensers; of adjustable height, with universal clamp.
Each $3 00

6431. Supports.—Iron, for condensers; with Bunsen's large clamp. Each 2 50

6436. Supports.—Iron, for funnels, etc.; with rings; with rectangular base.

No. of rings	1	2	3	4
Each . .	$0.55	.65	.85	1.25

6437. Supports.—Iron, with rings; triangular base. Same prices as preceding.

6438. Supports.—Iron, with extension rings, for flasks, retorts, funnels; triangular base.

Number of rings	1	2	3	4
Complete. Each	$0.80	1.00	1.50	2.00

6440. Supports.—Iron, for funnels, with three wood-lined rings. Each $1 50

6441. Supports.—Iron, for holding filters independently; made of heavy bent wire.
Each $0 35

6442. Supports.—Of iron, bracket shape, to attach to a wall; for filtering. Each 1 00

6445. Supports.—Rod and triangular base only, without clamp.

Length of rod, inches	16	20	26	36
Each . .	$0.35	.50	.75	1.00


6449


6446


6450


6452


6457


6458


6456

6446. **Supports.**—Rods and rectangular base only.

Size of base, inches	4 x 6	4 x 6	5 x 8	6 x 9
Length of rod, inches	16	20	26	36
Each	$0.30	.40	.65	1.00

6447. **Supports.**—Rods only.

Length, inches	16	20	26	36
Each	$0.15	.20	.25	.30

6449. **Supports.**—Rings only; of iron.

Diameter, inches	3	4	5	7
Each	$0.10	.15	.20	.25

6450. **Support Rings.**—Of cast iron, set of 4, concentric, with clamp for use on stands; outside diameter, 8 inches. Each $0 60

Supports.—Wood, for burettes; cork-lined clamps.

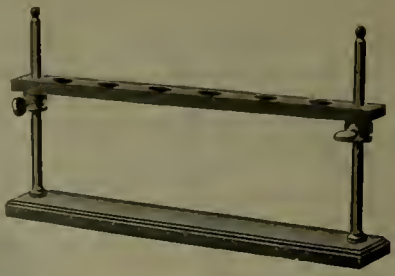
6451. For one burette. Each $1 00
6452. For two burettes. Each 1 25
6453. For four burettes. Each 1 50

Supports.—Wood, for funnels.

6456. For one funnel. Each $0 80
6457. For two funnels, one on each side. Each 90
6458. For two funnels, on same side. Each 80
6459. For four funnels on one arm. Each 90


6459


6462


6461


6467

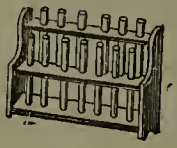

6464


6465


6466


6472


6471


6473


6474

6461. **Supports.**—Wood, for filtering, with shelf of adjustable height, supported by the two end rods, holding six funnels in one line. Each $2 00

6462. **Supports.**—Wood, upright shape, for condensers. Each 1 00

6464. **Supports.**—Wood, with Griffin's universal clamp, for tubes or long-necked flasks. Each $2 00

6465. **Supports.**—Wood, with Schellbach's universal clamp, for tubes or long-necked flasks. Each $2 00

6466. **Supports.**—Wood, table form. Each 1 50

6467. **Supports.**—Wood, Liebig's, for large tubes, etc.; with large wooden clamp. Each $2 00

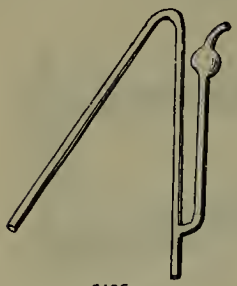
Supports.—Wood, for test tubes.

6471. For 6 test tubes, with pins. Each $0 50

6472. For 12 test tubes, in one row, with pins. Each 65

6473. For 13 test tubes, in 2 shelves, without pins. Each 50

6474. For 13 test tubes, in 2 shelves, with 7 pins. Each 50



6496



6497



6500



6516



6518

6478. **Supports.**—Chaddock's; for burettes. With square milk glass plate, black walnut base, japanned spring wire clamp on wood upright; thumb opens the rubber-covered V-shaped jaws, which close upon the burette and hold it firm.

For burettes	1	2	3
Each	$2.00	2.50	3.00

6496. **Syphons.**—Of glass, with suction tube.

Length, inches	10	12	18	24
Each	$0.30	.35	.45	.75

6497. **Syphons.**—Of glass, with suction tube and glass stopcock.

Length, inches	10	12	18	24
Each	$1.10	1.25	1.50	1.75

Syphons.—For drawing samples of liquids from casks, etc.; so-called Liquor Thieves.

6500. Of glass, 18 inches long. Each $0 85
6501. Of glass, 36 inches long. Each 1 25
6502. Of copper, 24 inches long. Each 1 25
6504. Of tin, 24 inches long. Each 75

Tanks—For Blowpipe Outfits.—Made of pressed steel and the most perfect tank on the market. Built to our specification in two pieces only, the bottom comprising one piece, and the entire balance of the tank forming the other piece. This makes them the strongest and neatest tanks possible to construct. They are tested to 200 pounds pressure per square inch. Each tank has 14 feet of ¼-inch pipe, swivel joints and the necessary valves.

6516. Capacity, 5 gallons, with pump attached; without gauge. Each..... $13 50
6517. Capacity, 7½ gallons, with pump attached; without gauge. Each 15 50
6518. Capacity, 10 gallons (with detachable pump of 1½-inch barrel, 22 inches long, provided with 7-inch floor flange); without gauge. Each $17 50

6520. Capacity, 18 gallons; for the distillate of large furnaces; without pump, but with fittings. Each $10 00

6521. Capacity, 30 gallons; for use as an air receiver for the distillate burner of large furnaces; equipped with safety-valve and fittings. Each $15 00

6523. **Tanks—For Blowpipe Outfits.**—Of heavy riveted galvanized iron, with 14 feet of ¼-inch pipe; pump attached; without swivel joints or pressure gauge. Capacity, 2½ gallons. Each $10 00

6526. **Tank Pressure Gauges.**—Each 2 50



6536

Testers.—For gold; for testing the fineness of jewelry; running from 8 to 22 karats.

6536. Needles alone. Per set $2 50

6537. Touchstones. Each 75

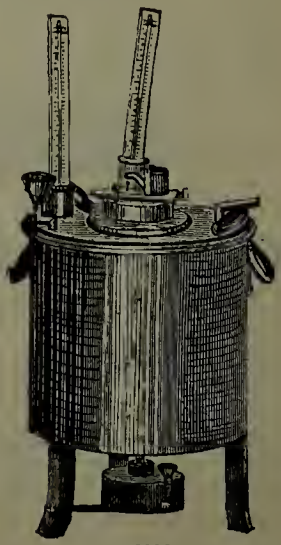
6538. Acid bottles. Each 50



6546



6551



6556

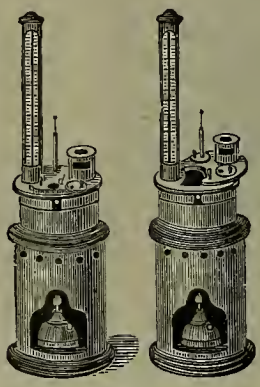
Testers—Oil.—For the open-fire test, to ascertain the temperature at which oil will flash or explode; a thermometer suspended in a glass vessel containing the oil, surrounded by a copper cup containing water, the lamp underneath surrounded by a copper hood. (See illustrations on page 231.)

6546. Complete, as described $5 00

6547. Extra cups. Each 35

6551. **Testers—Oil—Elliott's.**—The standard of New York and other States, with correct thermometer; arranged for oil lamp or Bunsen burner. Each $8 00

6556. **Testers—Oil Abel's.**—With two standard ivory thermometers; showing the flashing points of oils, with high or low volatility. Full directions are furnished with the apparatus; each instrument is standarized by the Royal Petroleum Association. Complete in wood case $80 00



6557



6566

6557. **Testers—Oil.**—Tagliabue's closed form for ascertaining the temperature at which oil will flash or explode; with Standard Thermometer, ranging from 50 to 170 degrees or from 80 to 250 degrees. Each $18 00
(See also Hydrometers, Viscosimeters.)

6566. **Test Glasses.**—Of conical shape, with lip, for analysis of urine, etc.

Capacity, ounces	1	2	4	6
Each	$0.15	.20	.25	.35

Test Paper.

6576. Acetate of lead. Per sheet $0 05

6577. Brazil wood. Per sheet 05

6578. Congo Red. Per sheet 05

6579. Litmus, blue, in sheets. Per sheet 05

6580. " blue, in books. Per book 05

6581. " red, in sheets. Per sheet 05

6582. " red, in books. Per book 05

6583. " neutral, in strips, in sealed vials 10

6584. Phenolphthalein, in sheets. Per sheet 05

6585. Starch (iodide of). Per sheet 05

6586. Turmeric. Per sheet 05



6591



6593



6595

6591. **Test Tubes.**—Of best annealed glass, of even thickness, free from lead, each one wrapped in paper.

Size, inches	3x½	4x½	5x½	5x⅝	5x¾
Per dozen	$0.20	.25	.30	.30	.35
Size, inches	6x⅝	6x¾	6x1	7x1	8x1
Per dozen	$0.35	.35	.50	.60	.75
Size, inches			9x1	10x1	12x1¼
Per dozen			$1.00	1.25	1.75

6593. **Test Tubes.**—With side neck.

Length, inches	5	6	7	8
Per dozen	$0.75	.85	1.00	1.30

6595. **Test Tubes.**—On foot, for precipitating.

Height, inches	4	5	6	7	8
Per dozen	$0.65	.75	1.00	1.25	1.50

6596. **Test Tubes.**—On foot, graduated.

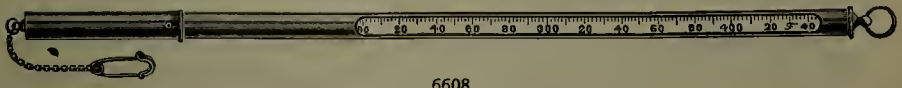
Capacity, cc.	5x½	10x½	15x½	20x½	25x½
Each	$0.25	.40	.45	.45	.50

6598. **Test Tubes.**—Of Resistance glass, capable of standing sudden changes of temperature, and resisting the action of corrosive chemicals.

Dimensions, inches, about	4x½	5x½	5x⅝	5x¾
Per dozen	$0.30	.35	.42	.50
Dimensions, inches, about	6x⅝	6x¾	8x1	8x1¼
Per dozen	$0.50	.60	.75	.95



6606



6608

Thermometers—Asphalt.—Straight stem, with 12-inch case, and stem 36 inches long below scale case.

6606. 100 to 500 degrees Fahrenheit. Each $25 50

6607. 200 to 1000 degrees Fahrenheit (aluminum scale case). Each 45 00

6608. **Thermometers—Asphalt.**—Armored, graduated 200 to 600 degrees Fahrenheit, with expansion chamber. Length 16 inches, nickel plated armor for protection. Each $4 50

6610. **Thermometers—Asphalt.**—Inspector's armored pocket thermometer, graduated 200 to 400 degrees Fahrenheit. Total length, 6 inches; incased in steel armor. Each $4 50

Thermometers—Bath or Chemical.—With scale engraved on the stem; enameled back; thickness 5/16 inch; in pastboard case.



6611-12 6613-14



6615

6611.	Degrees Centigrade	100	150	200	250	360
	Each	$1.00	1.25	1.50	1.75	2.00
6612.	Degrees Fahrenheit	212	300	400	500	600
	Each	$1.00	1.25	1.50	1.75	2.00

Thermometers—Bath.—With milk glass scale; inclosed in glass tube; pastboard case.

6613.	Degrees Centigrade	100	150	200	250	360
	Each	$1.00	1.25	1.50	1.75	2.00
6614.	Degrees Fahrenheit	212	300	400	500	600
	Each	$1.00	1.25	1.50	1.75	2.00

Thermometers—Bath.—With paper scale, in glass tube; pastboard case; ¼ inch thick.

6615.	Degrees Centigrade	100	150	200	250
	Each	$0.50	.75	1.00	1.00
6616.	Degrees Fahrenheit	212	300	400	500
	Each	$0.50	.75	1.00	1.00

Thermometers—Bath.—Like preceding, but ⅝-inch thick.

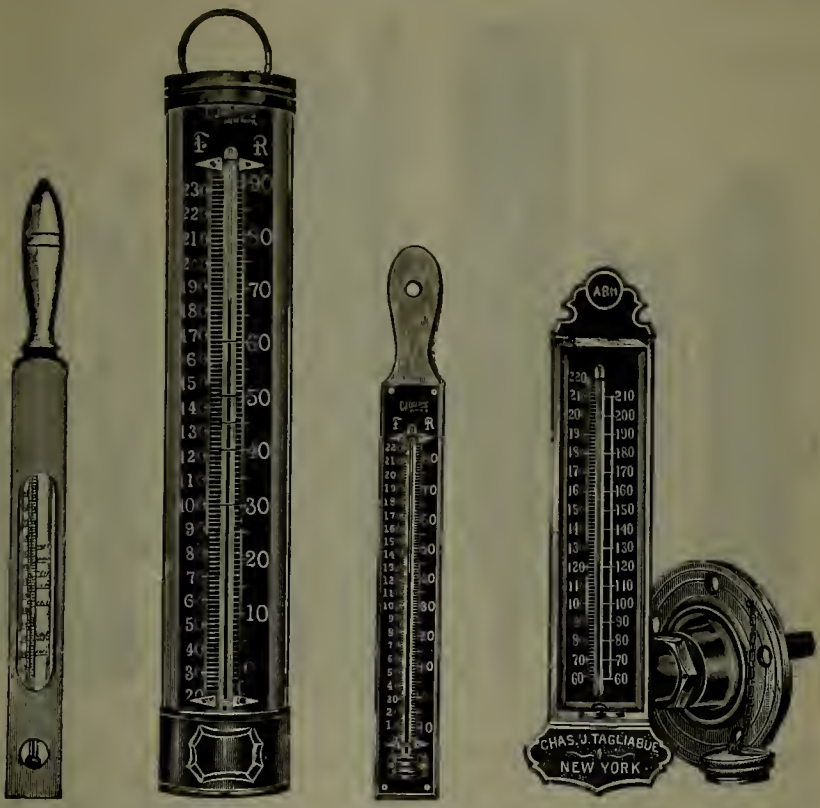
6617.	Degrees Centigrade	100	150	200	250
	Each	$0.75	1.00	1.00	1.25
6618.	Degrees Fahrenheit	212	300	400	500
	Each	$0.75	1.00	1.00	1.25

6620. **Thermometers—Bath.**—All glass, engraved on stem, with both scales.

Scale	100 C.–220 F.	150 C.–300 F.	200 C.–400 F.	360 C.–600 F.
Each	$1.50	1.75	2.00	2.25

6621. **Thermometers—Bath.**—Glass tube, paper scale, with both scales.

Scale	100 C.–220 F.	150 C.–300 F.	200 C.–400 F.
Each	$0.75	1.00	1.25



6627 6636 6637 6639

6622. **Thermometers—Bath.**—All glass, engraved scale, filled with nitrogen gas.

Scale	400 C.	700 F.
Each	$3.50	3.50

6623. **Thermometers—Bath—Standard.**—Of borosilicate glass, filled with gas under pressure; resisting high temperatures and internal pressure.

Scale	+32°–1000° F.	+32°–1000° F	0°–550° C	0°–550° C.
Divisions	2°	1°	1°	½°
Each	$12.00	15.00	12.00	15.00

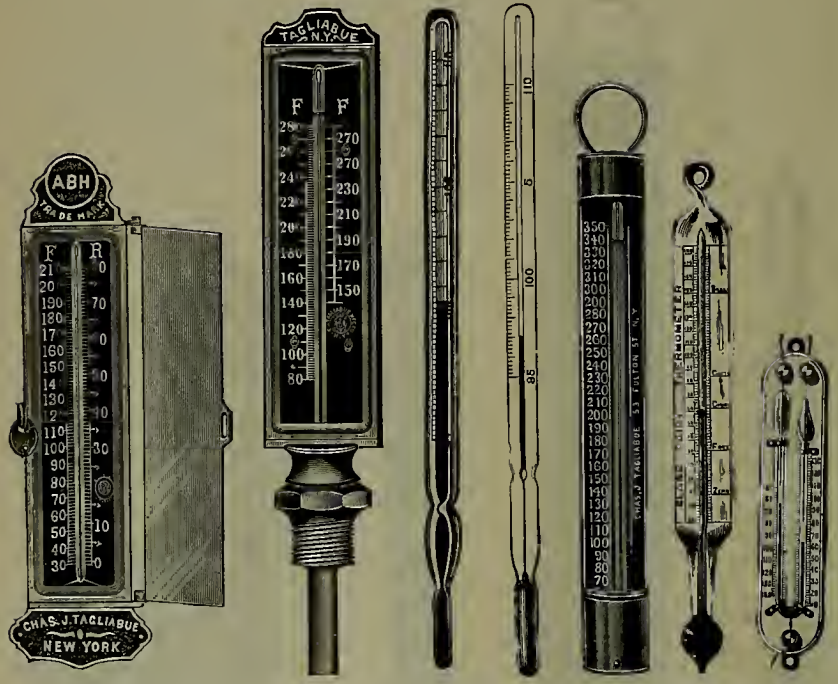
6624. **Thermometers—Bath.**—Of Resistance glass R, solid stem, etched scale. Length, 36 inches; diameter, ¼ inch; graduated into 1/10°.

Scale	0-50 C.	0-100 C.	100-200 C.
Each	$5.00	6.00	6.00

Thermometers—Bath.—Normal, of Resistance glass R, and engraved on stem. For correct laboratory work; about 20 inches long and ⅜ inch thick.

Scale, Centigrade	50 x 1/10	100 x ⅕	100 x 1/10	200 x ⅕
6625. Regular. Each	$5.50	6.00	7.00	7.50
6626. Certified. Each	10.00	11.25	12.50	12.50

The certified thermometers are examined.



6627. **Thermometers—Bath.**—Floating; glass tube, paper scale; on wooden frame that can be easily removed.

Length, inches	8	10	12
Each	$0.40	.50	.60

6631. **Thermometers—Bake Oven.**—For household use; porcelain scale, with indelible markings; on strong japanned iron base. Each $3 50

6632. **Thermometers—Bake Oven.**—For household use; metal flanged back, silver graduation, reading to 600 Fahrenheit. Each $1 00

6636. **Thermometers—Brewers'.**—With metal scale and frame, reading to 220 Fahrenheit and 80 Reaumur. Each $1 75

6637. **Thermometers—Brewers'.**—Metal scale on wood frame, reading to 200 Fahrenheit and 80 Reaumur. Each $2 00

6639. **Thermometers—Brewers'.**—With separable socket at an angle, which is joined to the instrument by a nut or union; reading to 220 Fahrenheit. Each... $18 50

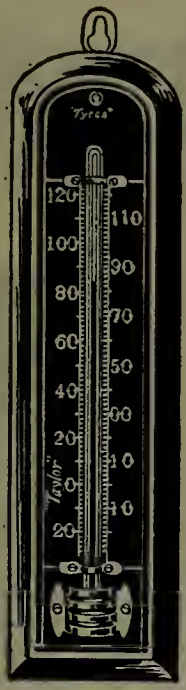
6640. **Thermometers—Brewers'.**—With V-shaped case, mercury bath, metal door with lock and key for greater security; reading to 220 Fahrenheit and 80 Reaumur; socket at an angle with nut. Each $20 00

6641. **Thermometers—Canners'.**—With thread for ½ or ¾-inch pipe, reading to 280 Fahrenheit. Each $2 00

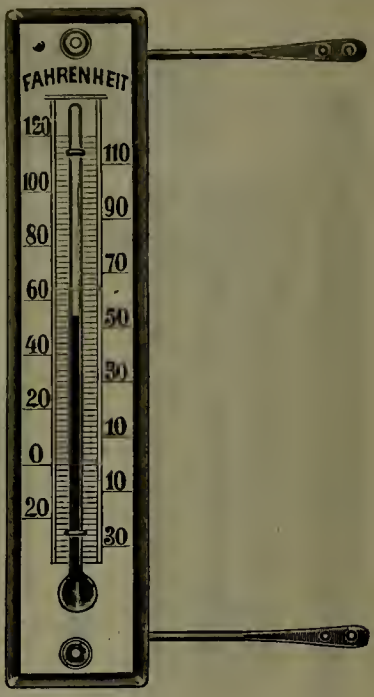
6646. **Thermometers—Clinical.**—For medical use in the treatment of fevers; with indestructible index registering maximum temperature in 60 seconds. In hard rubber case. A certificate of correction accompanies each instrument. Each. $1 25



6676



6678



6685

6656. **Thermometers—Confectioners'.**—In brass case, with metal scale, reading to 400 Fahrenheit. Each $2 00

6661. **Thermometers—Dairy.**—All glass, reading to 140 degrees Fahrenheit, with paper scale, marked at freezing, churning, cheese and scalding points. Each.... $0 25

6662. **Thermometers—Dairy.**—In plain tin case.

Length, inches	7	8	10	12
Each	$0.15	.20	.25	.30

6663. **Thermometers—Dairy.**—Floating glass thermometer, 9 inches long, accurately marked. Each $0 60

6671. **Thermometers—Electric.**—Used as frost indicators in vineyards and orchards. Each $6 00

Thermometers—Household.—In japanned tin cases, for rooms, refrigerators, hot houses, etc.

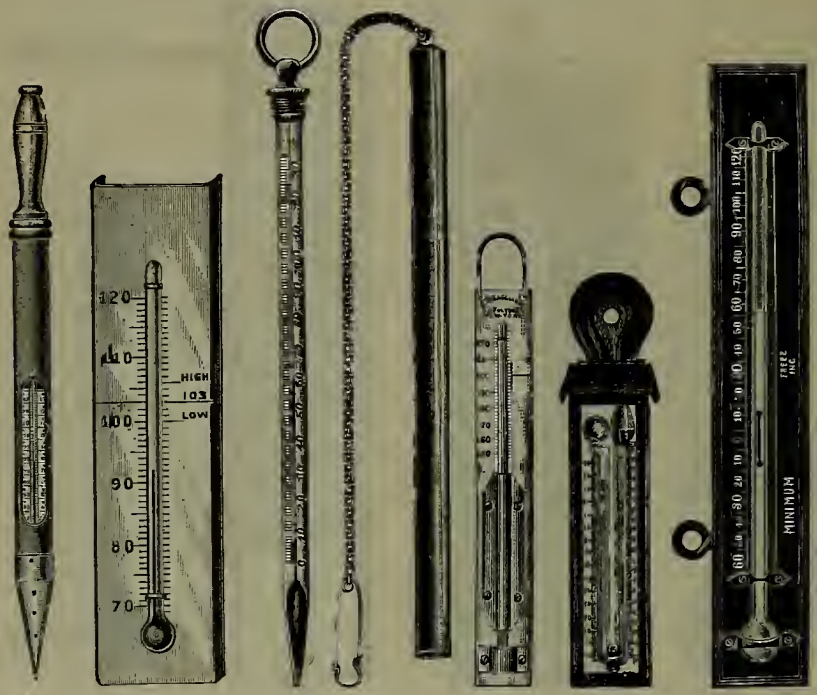
Length, inches	7	8	10	12
6676. Reading to 140 degrees Fahrenheit	$0.15	.20	.25	.30
6677. Reading to 280 degrees Fahrenheit	.25	.30	.35	.40

6678. **Thermometers—Household.**—Mounted on wood frame; very neat and convenient.

Length, inches	7	8	10
Each	$0.40	.50	.60

6681. **Thermometers—Household.**—For long-distance reading, with large, plain figures. Each $0 25

6685. **Thermometers—Household.**—Fancy designs, with brass arms to attach to window frame. Each $0 80



6691 6697 6701 6706 6713 6716

6691. **Thermometers—Hot Bed.**—Metal scale, mounted on round, turned wood frame, brass pointed bottom to push into the ground, from 10 to 100 degrees Fahrenheit. Each $2 00

Thermometers—Incubator.—Reading between 80 and 110 Fahrenheit, with red mark at 103 degrees.

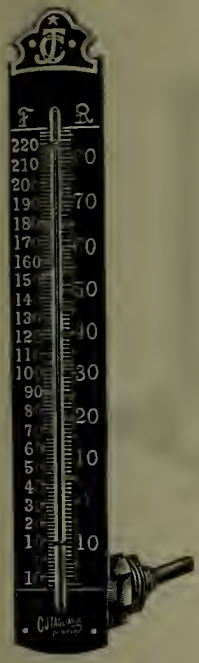
6696. All glass, with paper scale. Each $0 50
6697. Metal frame, straight, 6 inches long. Each 50
6698. Metal frame, scale at an angle, 4 inches long. Each 50
6701. **Thermometers—Meat and Ham Test.**—With 5-inch solid engraved glass stem; tapering bulb for taking temperature of dressed meats; ranging from 0 to 120 Fahrenheit. Strong nickel-plated case, chain and safety pin. Each..... $1 75
6706. **Thermometers—Salt Water.**—For use on ships, reading to 240 Fahrenheit; the graduations cut on a copper plate. Each $1 75

Thermometers—Self-Registering.—Mounted on neat wood frame, self-registering, reading from 40 below to 120 above zero Fahrenheit, with magnet to bring back indicator to any desired point.

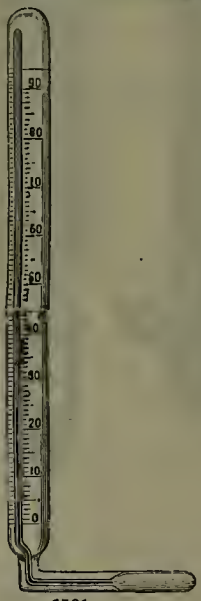
6713. Small size. Each $2 00
6714. Large size. Each 3 00
6716. **Thermometers—Self-Registering—Minimum.**—10 inches long, on polished wood back, consisting of a horizontal tube filled with alcohol, with a colored glass indicator floating in the liquid. Each $2 50
6718. **Thermometers—Self-Registering—Maximum.**—Like the preceding, but filled with mercury with an indicator that moves forward with the mercury. Each... $2 50



6719



6736



6731



6721

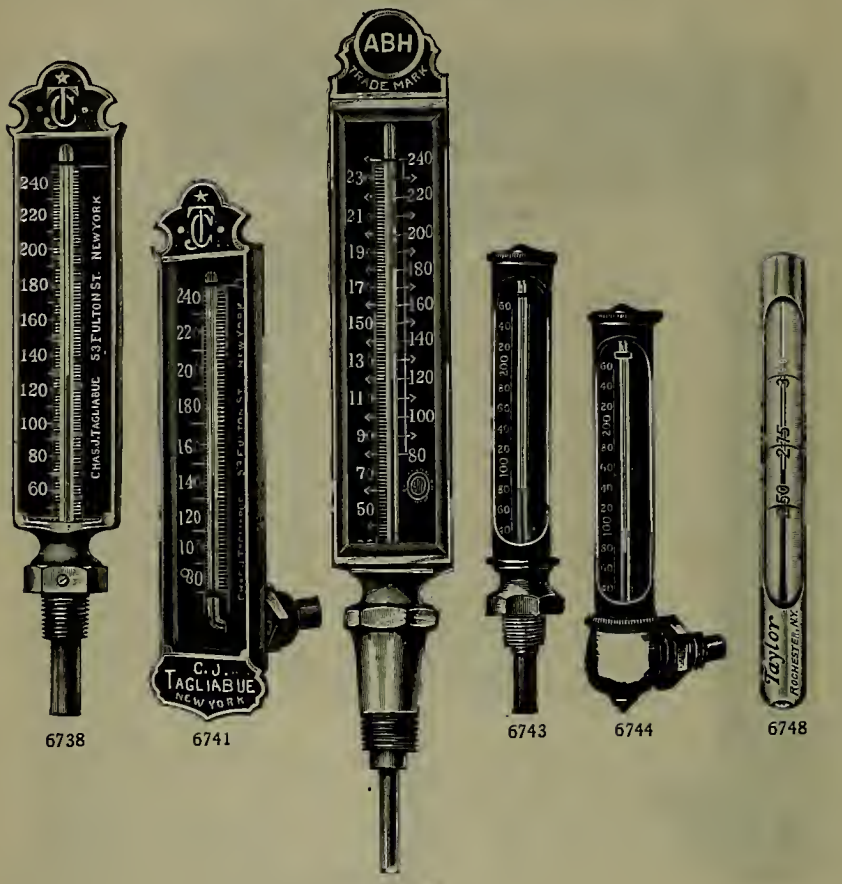
6719. **Thermometers—Maximum and Minimum.**—On polished hardwood back, each tube mounted on separate oxydized metal scale with silver deposited numbers. The scales are attached at upper end with thumb screws so that the thermometers may be reset as in the cut. Each.....$5 00

6721. **Thermometers—Sterilizer.**—For pasteurizing milk, wine, etc.; with a long stem for immersion in the liquid, leaving the scale free; reading to 210 Fahrenheit. Each$0 75

6731. **Thermometers—Tank.**—All glass, bent at an angle, scale reading to 150 degrees Centigrade. Each$2 00

6732. **Thermometers—Tank.**—All glass, straight; with a milk glass scale, reading to 300 Fahrenheit, and a stem 40 inches long, which is immersed in the solution. Each$3 00

6736. **Thermometers—Tank.**—All metal, bent form. Attached to the vat or tank by a nut that screws on the side. Reading to 260 Fahrenheit. Each.....$6 00



6738 6741 6740 6743 6744 6748

Thermometers—Tank.—All metal, straight form, with a thread for ½-inch pipe.

6738. Reading to 260 degrees Fahrenheit. Each $2 00

6739. Reading to 500 Fahrenheit. Each 2 50

6740. Reading to 240 Fahrenheit, for use where pipe is insulated. Each 2 25

Thermometers—Tank.—All metal, of the same construction as the preceding, but with the stem at an angle.

6741. Reading to 260 degrees Fahrenheit. Each $3 00

6742. Reading to 500 degrees Fahrenheit. Each 3 50

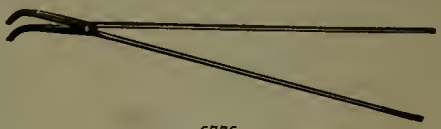
6743. **Thermometers—Tank.**—All metal, cylinder case, straight form, threaded connections; reading to 260 degrees Fahrenheit; for refrigerators, etc. Each..$6 00

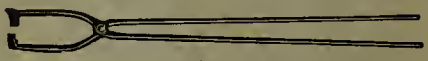
6744. **Thermometers—Tank.**—Similar to preceding, but with stem at an angle. Each $6 00

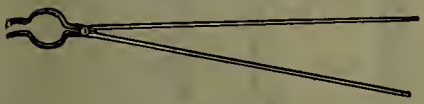
6748. **Thermometers—Vulcanizing.**—2⅝-inch nickel-plated armor case; etched lines only at 250, 275 and 300 degrees Fahrenheit. Each $0 75


6751


6752


6776


6777


6778


6779


6783


6784

6751. **Thermostats.**—Or Temperature Regulators; Reichert's form; almost entirely of glass; will regulate to ½ degree. Fits into a ½-inch hole, taking the place of a thermometer. Each $3 00

6752. **Thermostats.**—Novy's latest model, with glass stopcock instead of screw, for regulating the mercury and preventing any leaking out of the same. Each. $7 50

6776. **Tongs—Crucible.**—For assayers.

Length, inches	18	26	32	36	40
Each	$0.75	1.00	1.25	1.50	2.00

6777. **Tongs—Crucible Clasp.**—For lifting black lead crucibles while they hold molten bullion.

For crucible	5	6	8	10	12	14
Each	$1.50	1.75	2.00	2.50	2.75	3.00
For crucible	16	18	20	25	30	35
Each	$3.25	3.50	3.75	4.25	4.75	5.25
For crucible	40	45	50	60	70	80
Each	$6.00	6.50	7.50	8.25	9.00	10.00

6778. **Tongs—Crucible.**—Of forged wrought iron, 36 inches long, for handling crucibles in the furnace. Each $2 00

6779. **Tongs—Crucible.**—Of malleable iron, very neat and serviceable.

Length, inches	12	17
Each	$0.50	.60

Tongs—Crucible.—Of steel, 8 inches long.

6781. Single bend, nickel plated. Each $1 00
6782. Double bend, nickel plated. Each 1 25
6783. Single bend, black finish. Each 75
6784. Double bend, black finish. Each 1 00



6785



6801



6791



6792



6796



6793

6785. **Tongs—Crucible.**—Of aluminum, 8 inches long, double bend. Each.....$0 75

6791. **Tongs—Cupel.**—Of spring steel, light.

Length, inches	26	30	36
Each	$0.75	.90	1.00

6792. **Tongs—Cupel.**—With lap lip, 36 inches long. Each$1 00

6793. **Tongs—Cupel.**—With cupped lip, 36 inches long. Each 1 25

6796. **Tongs—Scorifier.**—Steel, light, 36 inches long. Each 1 00

Tongs—Platinum.—(See Platinum Ware.)

6801. **Trays—Annealing Cup.**—Of fire clay, for handling the annealing cups while in the muffle. Each$0 75

6806. **Trays—Bead.**—Or color plates, with 12 depressions. Each 65

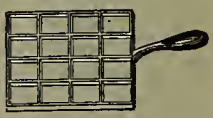
6808. **Trays—Bead.**—Of aluminum, with 12 depressions. Each 75



6812



6815



6818

Trays—Cupel.—Of cast iron, with round holes.

6811. Size 8 x 5½, with 6 holes$0 75

6812. " 8 x 8 " 9 " 1 00

6813. " 8 x 10 " 12 " 1 25

Trays—Cupel.—Of copper, with round holes, iron handle.

6814. Size 9 x 6½, with 6 holes. Each.....$0 75

6815. " 9 x 9 " 9 " " 1 00

6818. **Trays—Cupel.**—Of cast iron, with 16 shallow holes. Each 1 00



6826



6827



6830



6828

Trays—Cupel.—Of sheet iron, with movable lid.

6819. Size 9 x 6, with 12 holes. Each $1 00

6820. " 9 x 9, " 16 " " 1 25

6826. **Triangles.**—Of plain iron wire. Per dozen 50

6827. **Triangles.**—Of iron wire, covered with pipe stems. Per dozen 75

6828. **Triangles.**—Of tinned wire, with flanged clay tubes, small, medium and large. Each $1 00

6830. **Triangle Holders.**—Ring form, for holding platinum wire triangles, adjustable to fit platinum crucibles up to 100 cc. Each $1 25



6847



6849



6851

6846. **Tripods.**—Of plain, twisted wire. Each $0 20

6847. **Tripods.**—Of light iron, 8 inches high; diameter inside 2 inches, outside 3 inches. Each $0 20

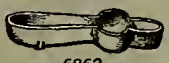
6849. **Tripods.**—Of iron, with concentric rings.

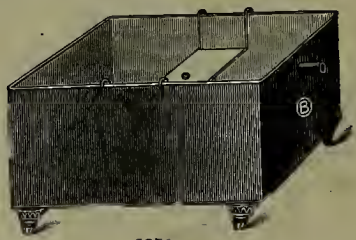
No. of rings, separate	1	2	3	4
Outside diameter largest ring, inches	4½	4½	6¼	8
Each	$0.30	.40	.50	.70

6851. **Tripods.**—Of iron, with adjustable sliding bracket to hold lamp.

No. of rings	1	2	3	4
Outside diameter largest, inches	4½	4½	6¼	8
Each	$0.35	.45	.55	.75

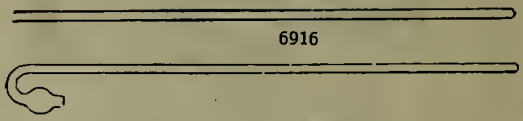

6861


6862


6871



6911


6916

6917


6931-33


6932-34


6935

Troughs—For Mercury.—Of porcelain.

6861. Cross shape, holding 6 pounds. Each $1 00
6862. Long form, holding 8 pounds. Each 1 25
6863. Long form, holding 16 pounds. Each 1 50

6871. **Troughs—Pneumatic.**—Of japanned tin, with sliding shelf and overflow.

Size	10x7x5	12x9x5	15x11x6	18x12x8
Each	$1.50	1.75	2.00	2.50

6872. **Troughs—Pneumatic.**—All glass, with sliding shelf.

Size	8x4x4	10x6x5	12x8x6
Each	$1.65	2.15	3.15

6886. **Tryers.**—Of sheet iron, 18 inches long, with wood handle, for sampling ores.
Each $0 75

6887. **Tryers.**—Of cast steel.

Length, inches	18	21	24
Each	$0.90	1.00	1.25

6911. **Tubes—Arsenic Reduction.**—Forms a, b, c, d. Per dozen $0 50
6916. **Tubes—Barometer.**—Torricelli's; one end sealed; 36 inches long. Each... 35
6917. **Tubes—Barometer.**—With bulb, sealed on end. Each 50

Tubes—Chloride Calcium.—Straight.

Length, inches	4	5	6	8	10	12
6931. With one bulb. Each	$0.12	.13	.15	.18	.22	.25
6932. With two bulbs. Each	.13	.15	.18	.20	.25	.30

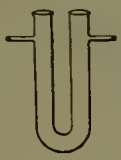
Tubes—Chloride Calcium.—Bent.

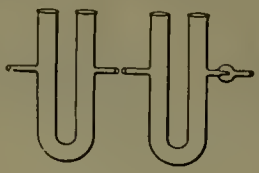
Length, inches	4	5	6	8	10
6933. With one bulb. Each	$0.12	.13	.15	.18	.22
6934. With two bulbs. Each	.13	.15	.18	.20	.25

6935. **Tubes—Chloride Calcium.**—Liebig's. Each $0 40

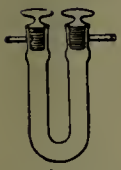

6937


6941


6942


6943


6944


6946


6947


6955

6936. Tubes—Chloride Calcium.—Mitscherlich; with side tubulure. Each$0 40

6937. Tubes—Chloride Calcium.—Marchand's; in one piece.

Length, inches	4	5	6
Each	$0.35	.40	.50

6940. Tubes—Chloride Calcium.—Volhard's.

Length, inches	4	5	6
Each	$0.35	.40	.50

6941. Tubes—Chloride Calcium.—U shape, plain.

Length, inches	3	4	5	6	8	10
Each	$0.12	.15	.18	.24	.35	.45

6942-3. Tubes—Chloride Calcium.—U shape, side tubes; near top (6942), or near middle (6943).

Length, inches	4	5	6	8
Each	$0.18	.22	.30	.40

6944. Tubes—Chloride Calcium.—U shape, with two tubes ground air tight to fit ends.

Length, inches	3	4	5	6
Each	$0.45	.55	.65	.75

6946. Tubes—Chloride Calcium.—Bischof's, U shape, with side delivery tubes and perforated stoppers ground and bored to meet same.

Length, inches	3	4	5	6
Each	$0.85	1.00	1.15	1.35

6947. Tubes—Chloride Calcium.—Woehler's, with three bulbs.

Length, inches	5	6	7
Each	$0.35	.45	.60

6948. Tubes—Chloride Calcium.—Like preceding, of Resistance glass.

Length, inches	5	6	7
Each	$0.50	.60	.75

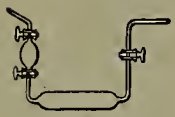
6956. Tubes—Combustion.—Of hardest Bohemian glass, with end drawn out to a point.

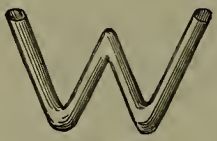
Length, inches	14	16	18	20	24
Each	$0.20	.25	.30	.35	.40


6966


6967


6968


6969


6976


6981


6982


6991


6992


6994

Tubes—Combustion.—Of porcelain, glazed inside.

	Length, inches	12	18	20	24	30
6961.	Bore ½ to ¾ inch. Each	$0.65	.75	1.00	1.50	2.00
6962.	Bore 1 inch. Each	.85	1.00	1.25	1.75	2.50

6966. **Tubes—Condensing.**—With 2 stopcocks on vertical limb. Each $2 75

6967. **Tubes—Condensing.**—Schuman's; for sulphurous acid, with 2 stopcocks on horizontal limb. Each $2 75

6968. **Tubes—Condensing.**—Liebig's, for sulphurous acid, with 2 bulbs and 3 stopcocks on same line. Each $3 00

6969. **Tubes—Condensing.**—Fischer's, for sulphurous acid, with 3 stopcocks. Each 3 25

6976. **Tubes—Condensing.**—W shape, 6 inches high. Each 40

6977. **Tubes—Condensing.**—W shape, with 2 bulbs. Each 1 00

Tubes—Condensing.—U shape, with outlet at bend.

	Length, inches	6	8	10
6981.	Plain. Each	$0.40	.45	.50
6982.	With stopcock	1.25	1.50	1.75

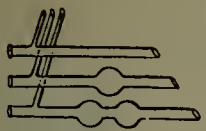
6991. **Tubes—Connecting.**—T shape.

	Length of arm, inches	1½	1½	1½	2
	Diameter of bore, inches	⅛	3/16	¼	5/16
	Each	$0.10	.12	.12	.13
	Length of arms, inches		2	2½	3
	Diameter of bore, inches		⅜	½	¾
	Each		$0.15	.18	.22

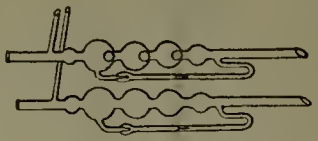
6992. **Tubes—Connecting.**—Y shape. Same prices as preceding.

6994. **Tubes—Connecting.**—Glass, T shape, with stopcocks on arm. Each..... $2 50

7001. **Tubes—Distilling.**—For fractional distillation, closed form. Each 25



7002-3-4



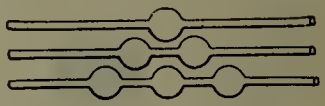
7011-12



7028



7041-3



7051-3

Tubes—Distilling.—Open form.

7002. Plain tube. Each $0 25
7003. With one bulb. Each 30
7004. With two bulbs. Each 35

Tubes—Distilling.—Of Resistance glass, ® like preceding.

7005. Plain tube. Each $0 30
7006. With one bulb. Each 35
7007. With two bulbs. Each 42

Tubes—Distilling.—Glinsky's.

Length, inches	12	14	16
7011. Plain. Each	$1.00	1.25	1.50
7012. With hollow glass valves. Each	1.50	1.75	2.00

7021. **Tubes—Explosion.**—Of very heavy glass, 9 inches long and 1½ inches inside diameter. Each $0 60

7026. **Tubes—Filtering.**—Fresenius form, for filtering through asbestos, glass, wool, etc.; 5½ inches long. Each $0 35

7027. **Tubes—Filtering.**—With contraction near bulb. Each 35

7028. **Tubes—Filtering.**—Gooch, for use in Gooch crucibles.

Inside diameter, mm.	20	25	28	32
Each	$0.20	.25	.30	.35

7031. **Tubes—Gas Sample.**—Cylindrical shape, with 2 stopcocks. Each $2 25

Tubes—Nessler.—For ammonia test, graduated, with even bottom.

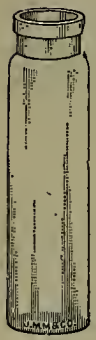
7041. With 1 mark at 50 cc. Each $0 50
7042. With 1 mark at 100 cc. Each 60
7043. With 2 marks, 50, 100 cc. Each 70
7044. With 3 marks, 50, 100, 150 cc. Each 1 00

7051-3. **Tubes—Reduction.**—Of hard glass, with bulbs.

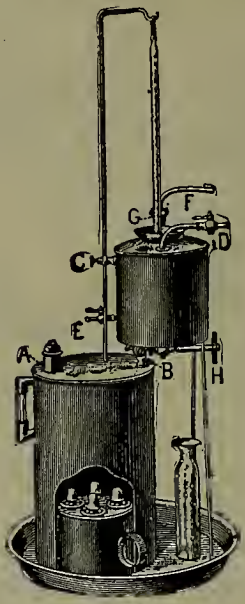
Number of bulbs	1	2	3
Each	$0.20	.25	.35


7061


7062


7076


7081



7106


7107

Tubes—Washing.—For gas washing in flasks, etc.

7061. Scheibler's. Each $0 60
7062. Vogel's. Each 50
7063. Schrodter's. Each 1 00

Tubing—Glass.—(See Glass Tubing, No. 4001.)

7076. **Vials—Homeopathic.**—Short form.

Capacity, drachms	⅛	¼	½	1	2	3	4
Per gross	$0.70	.70	.75	.90	1.25	1.40	2.00

7077. **Vials—Homeopathic.**—Long form. Same price as preceding.

7081. **Vials—Screw Neck.**—With nickel-plated cap.

Capacity, drachms	1	2	3	4
Per dozen	$0.20	.25	.35	.40

Size, inches	3½ x ⅞	5½ x ⅞
Per dozen	$0.65	.85

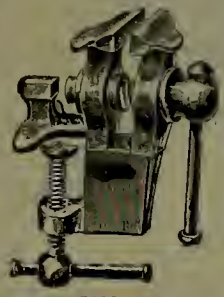
7086. **Vials—Naturalists'.**—Straight cylinder form.

Size, inches	3 x ⅞	2½ x ⅝
Per dozen	$0.50	.30

7101. **Viscosimeters.**—Pipettes; Dudley's, as adopted by the Pennsylvania Railroad; delivers 100 cc. of distilled water at a temperature of 100 Fahrenheit in 35 seconds. Each $2 00

7106. **Viscosimeters.**—Tagliabue's. An instrument that has been especially devised with a thorough knowledge of lubricating oils and the requirements of manufacture and trade. It meets all the demands as a measure of viscosity. It shows the viscosity of any oil by noticing the number of seconds required for 50 cc. to run through the open faucet; this corresponds to the most generally approved standard now in use by the largest refiners. The tests can be made at a tem-


7126


7128


7151 7152


7146


7148

perature of 70 degrees Fahrenheit, or at 212 degrees Fahrenheit. Full description of apparatus furnished on application.

Price, complete with improved stop-watch $60 00

7107. **Viscosimeters.**—Engler's. Of latest improved construction; adopted by the German Government; with double walls, gold plated inside, outlet of platinum, two thermometers 200 degrees Centigrade; volumetric flask.

Complete with directions, in case. Each $40 00

7126. **Vises.**—Of steel, for hand.

Width of jaw, inches	1½	1¾	2	2½
Each	$0.80	1.00	1.25	1.50

7128. **Vises.**—Of steel, for bench work.

Width of jaw, inches			2½	3
Each			$1.50	2.25

7130. **Vises.**—Of cast-iron, for bench.

Prices, from $1 00 to $2 50

7146. **Wash Bottles.**—Fresenius; with rubber stopper.

Capacity, ounces	4	8	16	32
Each	$0.40	.45	.55	.75

7147. **Wash Bottles.**—Fresenius; with flexible discharge tube, and rubber stopper.

Capacity, ounces	4	8	16	32
Each	$0.45	.50	.60	.80

7148. **Wash Bottles.**—With tube ground into neck.

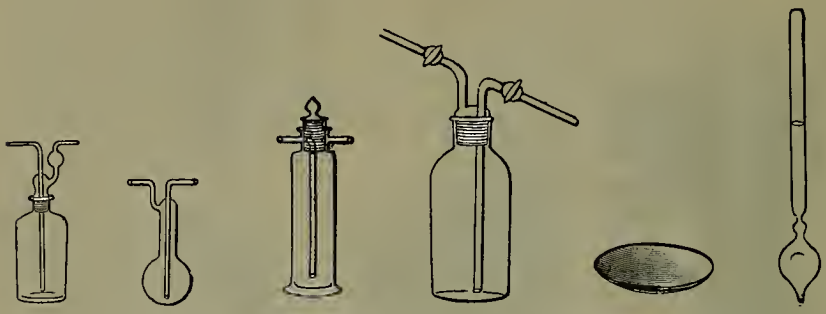
Capacity, cc.	250	500	750	1000
Each	$1.10	1.25	1.50	1.75

7149. **Wash Bottles.**—Drechsel's; all glass, for gases.

Capacity, ounces		8	16	32
Each		$1.25	1.50	2.00

Wash Bottles.—Allihn's; for gases.

Capacity, cc.		250	500	1000
7151. Plain, each		$1.50	1.75	2.25
7152. With valve. Each		2 00	2.25	2.75



7153 7154 7155 7157 7171 7211

7153. **Wash Bottles.**—Drechsel's; for gases.

Capacity, cc.	250	500
Each	$1.00	1.25

7154. **Wash Bottles.**—Cloez; for gases.

Capacity, cc.	250	500
Each	$0.75	1.00

7155. **Wash Bottles.**—Frederich's; for gases.

Capacity, cc.	125	250	500
Each	$1.50	1.75	2.50

7157. **Wash Bottles.**—For volatile liquids, with tabulated stopper ground in, the tubes fitted with glass stopcocks.

Capacity, ounces	4	8	16	32
Each	$2.00	2.50	3.00	3.50

7158. **Wash Bottles.**—Similar to 7148, but with name etched.

Capacity, cc.	250	500	1000
Each	$1.60	1.75	2.25

7171. **Watch Glasses.**—Of best annealed glass, for covering beakers, etc.

Diameter, inches	1¼	1½	2	2½	3	3½	4	4½
Per dozen	$0.20	.25	.30	.75	1.00	1.25	1.50	2.00
Diameter, inches				5	5½	6	7	8
Each				$0.22	.25	.25	.35	.45

7181. **Watch Glass Clamps.**—For holding watch glasses together.

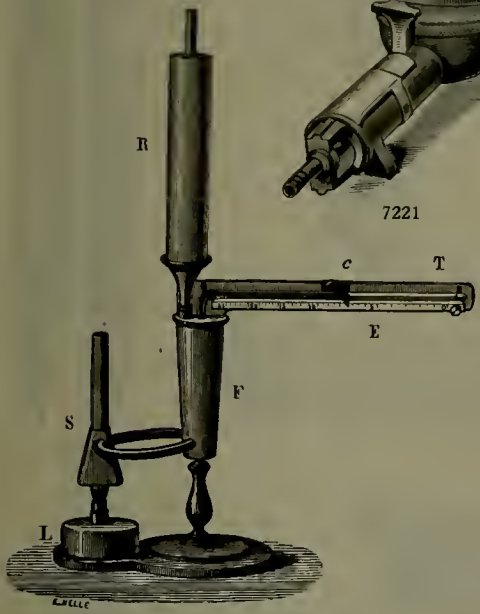
Size, for watch glasses	2 to 2½	3 to 3½	4 to 4½
Each	$0.20	.25	.30

7191. **Watch Springs.**—Of steel, for burning in oxygen. Per dozen.....$0 35

7211. **Water Hammers.**—For illustrating fall of water in vacuo. Each.....$1 00



7221



7261



7266

Water Heaters.—Fletcher's; for illuminating gas; giving an instantaneous and continuous supply of water at any temperature.

7221. Complete, with burner $5 00

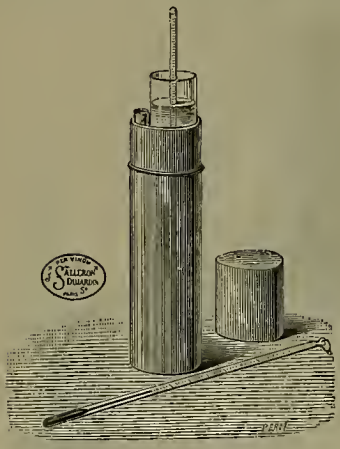
7222. Water heater, alone. Each 3 00

7241. **Wicks—Stove.**

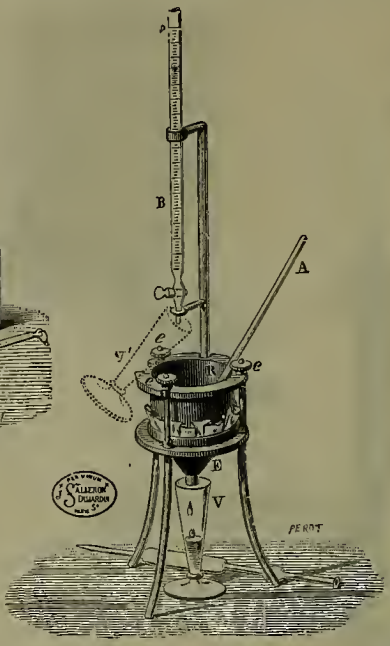
Width, inches	1	1½	2	2½	3	4
Per dozen	$0.12	.15	.20	.25	.30	.40

7261. **Wine Test Apparatus.**—Ebullioscope Malligand; for the rapid determination of alcohol in wines without distillation, showing the percentage by volume within 2/10 per cent; the determination is made in 10 minutes.
Complete, in box, with full directions..... $30 00

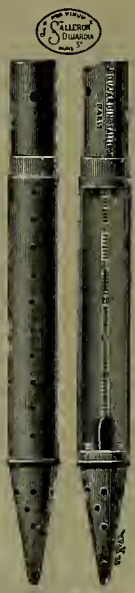
7266. **Wine Test Apparatus.**—Ebulliometer Salleron. This apparatus gives a very rapid and accurate determination of the alcohol in wine and is highly recommended by the expert wine analysts.
Complete, in box, with full directions $30 00
(See also Stills, No. 6301.)



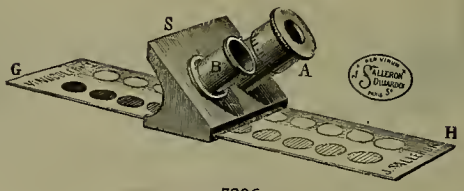
7271



7276



7286



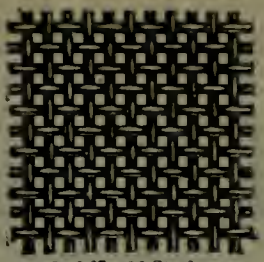
7296

7271. **Wine Test Apparatus—Extracto—Oenometer.**—Dujardin's apparatus for the determination of sugar and extractive matter left in wines after distillation of the alcohol. In tin box, with directions. Each $4 50

7276. **Wine Test Apparatus—Gypsometer Salleron.**—For determining the quantity of sulphates due to the presence of plaster in wines.
Complete, with directions $25 00

7286. **Wine Test Apparatus—Tank Thermometer.**—For determining the temperature of the pomace and must during fermentation in order to regulate the same. This thermometer, which is enclosed in a metal frame with sliding front, has an indicator to mark the maximum temperature of the must. Each $6 00

7296. **Wine Test Apparatus—Vinocolorimeter Salleron.**—For the determination of the coloring power of wines, in order to prepare blendings both of red and white wines. It is indispensable for chemists in large wine establishments.
Complete, in box $30 00



8x8 No. 16 Steel.

7311

7311. **Wire Cloth.**—For battery screens; of brass wire.

Mesh	2	3	4	5	6	8	10
Made of wire No.	16	17	18	19	20	22	23
Per square foot	$0.50	.50	.50	.50	.50	.50	.50
Mesh	12	14	16	18	20	22	24
Made of wire No.	24	25	26	27	28	29	30
Per square foot	$0.50	.50	.50	.50	.50	.50	.50
Mesh	30	35	40	50	60	70	80
Made of wire No.	31	32	33	35	36	37	38
Per square foot	$0.55	.55	.60	.65	.70	.80	1.00

Mesh	90	100	120	150	200
Made of wire No.	39	40	...	...	...
Per square foot	$1.25	1.45	1.85	3.00	6.00

7316. **Wire Cloth.**—For battery screens, etc.; of steel. This cloth is woven and kept in stock, 18, 24 and 28 inches wide. It is specially prepared by a bluing process to resist oxidation or rust, and is well adapted to the needs of the miner.

Mesh	16	18	20	24	30
Made of wire No.	24	25	26	27	29
Per square foot	$0.38	.38	.43	.55	.56
Mesh		35	40	50	60
Made of wire No.		31	32	35	36
Per square foot		$0.57	.57	.65	.85

7321. **Wire Cloth.**—For battery screens, etc.; of copper.

Mesh	8	10	12	14	16	18	20
Made of wire No.	22	23	24	25	26	27	28
Per square foot	$0.60	.60	.60	.60	.60	.60	.60
Mesh	22	24	30	35	40	50	60
Made of wire No.	29	30	31	32	33	35	36
Per square foot	$0.60	.60	.65	.65	.70	.75	.80

N. B.—The mesh is the distance between the center of one wire to the center of the next wire, and, as mentioned above, means the number of holes to the linear inch. No length of less than 100 feet shall be understood to be a roll.

7341. **Wire Holders.**—For holding platinum foil or wire in a flame; with sliding ring and perforated stem, 3 inches long. Each $0 30


7351


7352


7353


7357

Woulff Bottles.—Plain shape, 2 or 3 necks.

	Capacity, ounces	4	8	16	32
7351.	2 necks. Each	$0.40	.45	.50	.85
7352.	3 necks. Each	.45	.50	.60	1.00
	Capacity, gallons		½	1	2
	2 necks. Each		$1.25	2.00	3.50
	3 necks. Each		1.50	2.25	4.00

Woulff Bottles.—With outlet at bottom.

	Capacity, ounces	4	8	16	32
7353.	2 necks. Each	$0.50	.60	.75	1.25
7354.	3 necks. Each	.60	.70	1.00	1.50
	Capacity, gallons		½	1	2
	2 necks. Each		$1.75	2.50	4.00
	3 necks. Each		2.00	2.75	4.50

7357. **Woulff Bottles.**—With stopper in middle neck, and with tubes ground into the other two necks.

Capacity, ounces	4	8	16	32	64
Each	$1.25	1.50	1.75	2.00	2.75

Zinc.—(See Batteries, No. 1916, etc.)

Fused Silica Ware

The principal properties of Silica Ware which render it of such value to the chemist and analyist are its great resistance to heat and to acids.

1. It is among the most refractory of materials, melting about 1500 degrees Centigrade.
2. It possesses a very low coefficient of expansion, about 1/17 that of glass; it is therefore unaffected by sudden and extreme changes of temperature.
3. It is not attacked by acids except by hydrofluoric acid at ordinary temperature and by phosphoric acid above 400 degrees Centigrade.
4. It has high electrical insulating properties, which are retained to a high degree, even at the high temperatures, as its resistance decreases with rise of temperature much more slowly than that of glass or porcelain.

Fused Silica is made by the fusion of rock crystals in an electric furnace and the articles manufactured of this material are, on account of their low price, good substitutes for platinum and similar costly materials



7366. **Basins.**—Deep shape.

Diameter, inches	2	2¾	3¼	3½	4	6	7
Depth, inches	⅞	1	1¾	⅞	1¼	2½	2¾
Each	$1.00	1.15	1.25	1.40	1.65	3.00	3.75

7368. **Basins.**—Flat shape.

Diameter, inches	2½	2⅞	3¾	4⅞
Depth, inches	½	½	¾	⅞
Each	$1.10	1.20	1.50	2.25

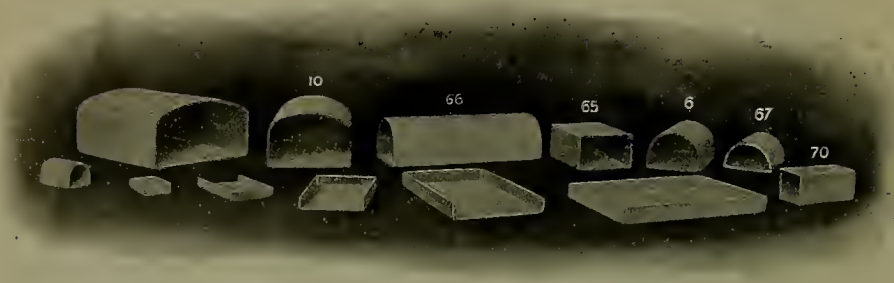


7374. **Crucibles.**

Diam. at top, inches	1⅝	1⅝	1⅞	2¼	2⅝	2
Height, inches	¾	1	1⅛	1⅜	1¾	2
Each	$0.65	.65	.75	.90	1.25	1.25

7377. **Crucible Lids.**—For above.

Diameter, inches	1¾	2	2⅜	2¾
Depth at center, inches	¼	¼	⅜	½
Each	$0.50	.60	.80	1.00



7381. Combustion Boats.—Without handle.

Length inside, inches	1¾	3	3	4
Width, inches	½	½	⅝	¾
Depth, inches	¼	¼	⅜	½
Each	$0.50	.75	.90	1.20

7384. Muffles.

Length, inches	4⅜	9½	15¼
Width, inches	2½	6	11
Height, inches	2⅜	4¾	6¾
Each	$1.90	4.15	9.40



7387. Plates.

Thickness, inches	1/16	1/16	3/16	3/16
Dimensions, inches	4x4	6x6	4x4	6x6
Each	$0.30	.65	.85	1.90

7391. Triangles.—On nickel wire.

Size, inches	1½	2	2½
Each	$0.20	.20	.30

7393. **Triangles.**—All silica.

Size, inches	1½	2	2½	
Each	$0.60	.60	.90	

7396. **Tubes.**—For combustion.

Bore, inch	9/16	9/16	⅝	⅝
Length, inches	24	36	24	36
Each	$3.20	4.80	3.40	5.10

Blowpipe Apparatus

According to Prof. Plattner—for Qualitative and Quantitative Blowpipe Analysis.

7401. **Anvil.**—Small, best polished steel, 2¼x1¼x½. Price, each.....$0 50

7404. **Balance.**—Plattner's, for blowpipe analysis; sensitive to 1 milligramme, with a set of weights from 2 grammes down; in polished mahogany box. Price, each.$25 00

7407. **Balance.**—Pulp.

7410. **Beakers.**—Nest of 3; lipped; 1½, 2½, 5 oz. Price 30

7411. **Blowpipe.**—Brass, jewelers' form, plain. Price 20

7412. **Blowpipe.**—Brass, jewelers' form, with bulb. Price, each 25

7413. **Blowpipe.**—Plattner's; with movable platinum tip, hard rubber mouthpiece. Price, each$2 25

7415. **Blowpipe.**—Fletcher's; with folding stand (see description under No. 2186); as illustrated. Each$4 75

7416. Blowpipe alone 1 00



7419-21



7420

Borers.—For charcoal.

7419. Four-cornered, small 45

7420. Four-cornered, spatula end 50

7421. Club shape 75

7422. Square end, magnetized, chisel point 50

7425. **Brushes.**—Lingke's; for buttons; ⅝ inch thick 50

7428. **Burner.**—Bunsen's, with tubs and tip for blowpiping..... 85

7431. **Capsules.**—Charcoal.

Diameter, inches	¾	⅞	1
Per dozen	$0.20	.25	.35

7434. **Capsules.**—Clay. Per dozen$0 30

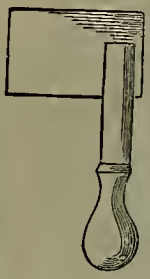
7437. **Capsules.**—Porcelain. Price, each, 8 cc., $0.15 15 cc..... 20

7440. **Carbon Blocks.**—Moulded. Each 30

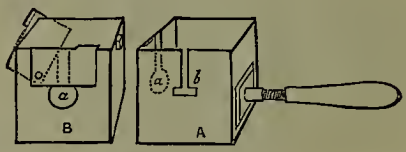
7441. **Charcoal Blocks.**—Pressed, 80x20x10 mm. Per dozen..... 50

7442. " " Pressed, 80x20x20 mm. Per dozen 75


7463


7467


7484



7493

Blowpipe Apparatus—Continued.

7443. **Charcoal Slabs.**—Or sticks, 4x1x1 inches. Per dozen $0 50

7445. **Cobalt Plates.**—Of blue glass; for color tests. Each 10

7448. **Color Test Plates.**—Of porcelain; with 12 depressions. Each 65

7451. **Covers.**—Of charcoal, recessed to receive clay capsules; 14 mm. thick, 32 mm. square. Per dozen $0 60

7454. **Crucibles.**—Clay. Per dozen 30

7457. **Cupels.**—Of bone ash; ½ inch in diameter. Per dozen 20

7460. **Cylinders.**—Charcoal. Each 25

7461. **Cylinders.**—For examination of sublimates. Each 50

7463. **Cylinders.**—Clay; holders for charcoal crucibles and capsules. Each..... 25

7466. **Cylinders.**—Porcelain; prismatic form, with cavity at end and side. Each.. 35

7467. **Cylinders.**—Wood, for making paper cornets. Each 20

7469. **Dishes.**—Porcelain; set of three 40

7472. **Dropping Bottles.**—Glass stoppered, 2 ounces. Each 25

7475. **Dropping Tubes.**—Per dozen 40

7478. **Files.**—Round or triangular, with handle. Each 15

Filter Paper.—(See No. 3436, etc.)

7481. **Forceps.**—Polished nickel-plated steel, platinum point; Raynor's form, 5½ inches. Each $2 25

7484. **Funnels.**—Of glass; 3 in nest. Per nest 20

7487. **Funnel Supports.**—Wood base, 2 brass rings, adjustable vertically or sideways. Each $0 90

7490. **Hammers.**—Plattner's, with wood handle. Each 60
Colton's, with wire handle. Each 75

7493. **Holders.**—For charcoal, with screw handle to fasten coals in. Each..... 1 75

7496. **Holders.**—For chimney and funnel. Each $1 50

7499. **Holders.**—Cupel; upright form. Each 30

7502. **Holders.**—Platinum wire, with sliding ring and flat jaw. Each..... 35

7503. **Holders.**—Platinum wire, with hollow handle, milled screw, clamping point. Each $0 90

7505. **Knives.**—Cork, for cutting corks. Each 20



7532



7538



7544

Blowpipe Apparatus—Continued.

7508. **Lamps.**—Blowpipe, Plattner's; nickel plated, with swivel. Each.....$3 50
7509. **Lamps.**—Blowpipe; Fletcher's; nickel plated. Each 1 00
7510. **Lamps—Tallow.**—Of tin. Each 30
7514. **Magnets.**—Straight, with chisel end. Each 40
7517. **Magnets.**—Horseshoe; 3 inches. Each 20
7520. **Magnifying Glass.**—Strong, folding. Each 1 00
7523. **Mattrasses.**—Bohemian glass, with bulb. Per dozen 75
7526. **Mattrass Holders.**—Each 40
7529. **Mixing Capsules.**—Of brass. Each 25
7530. " " Of horn. Each 25

7532. **Mortars.**—Agate; with pestles.

Diameter, inches	1½	1¾	2	2½	3
Each	$1.30	1.60	1.85	2.75	3.75

7535. **Mortars.**—Diamond; Plattner's; of hard polished steel. Each.....$4 00
7536. **Mortars.**—Diamond; Leeds. Each 2 00
7538. **Moulds.**—Cupel; with two cups and one mould, on stand. Each..... 1 50
7541. **Moulds.**—For pressed coal furnaces and covers; with two pestles and extra bottom piece. Complete$5 00
7544. **Moulds.**—Crucible; of polished brass, in sections to take apart; for clay crucibles. Each$4 50
7545. **Moulds.**—Crucible; of boxwood, for clay crucibles. Each 1 25
7547. **Moulds.**—Capsule; of boxwood, for clay capsules. Each 75
7550. **Paper.**—Glazed, for mixing powdered ores; 20x24 inches; of various colors. Per quire 50
7553. **Pipettes.**—With glass bulb; 150 mm. long. Each 15
7556. **Plyers.**—Flat nose, 5 inches long. Each 50
7557. " Round nose, 5 inches long. Each 50
7558. " For assay buttons, 5 inches long. Each 60

Platinum.—Crucibles, Dishes, Foil, Wire, etc.—See No. 5421, etc.

7562. **Saws.**—For charcoal, with polished blade. Each 35



7589

Blowpipe Apparatus—Continued.

7565. **Scales.**—Harkort's; of ivory, for measuring blowpipe bottons; to take the place of a balance. Each $3 00

7568. **Scales of Hardness.**—Consisting of 9 specimens, in large pieces; complete with file, chisel and streak plate $5 00

7571. **Scissors.**—For blowpipe. Each 40

7572. **Shears.**—For cutting metal. Each 75

7575. **Sieves.**—Nest of 3; of brass with tin frame, with cup at bottom; 3 inches in diameter. Nos. 30, 50 and 100 are generally given; any other mesh supplied.. $1 50

7578. **Silver Foil.**—Proof silver. Per ounce, about 1 50

7583. **Soda Paper.**—Box of 40 sheets 25

7584. " " Large sheets, 10x5 inches. Each 05

7586. **Spatulas.**—Double end, 4 inches long; of steel. Each 25

7587. " Wood handle, 3-inch steel blade. Each 25

7589. **Spoons.**—Ivory, 3½ inches long 30

7592. **Squares or Stoves.**—Of prepared powdered charcoal; 30 mm. high, 32 mm. square; recessed to receive crucible No. 7454. Per dozen $1 00

7595. **Stirrers.**—Glass. Per dozen 50

7598. **Streak Plates.**—Of porous porcelain, 1⅝x2¾ inches. Each 25

7601. **Supports.**—Test tube; 6 holes and draining pins. Each 50

7602. " Test tube; 13 holes and 6 draining pins. Each 50

7604. **Test Lead Measures.**—Graduated into 5, 10, 15, 20 blowpipe centners. Each 35

7607. **Test Lead Sieves.**—Each 30

7610. **Test Needles.**—Of gold; set of 9, fastened to a ring, containing on the points gold of 4, 6, 8, 10, 12, 14, 16, 18, 20 karats fine. Price $3 00

7613. **Test Tubes.**—Per dozen 25

7616. **Test Tube Holders.**—Each 15

7619. **Touchstones.**—Black, for testing gold. Each 75

7622. **Trays.**—Sheet-iron, for carrying cupels or capsules, 12 depressions. Each.. 65

7625. **Tubes.**—Of hard glass, open at both ends. Per dozen..... 50

7626. **Tubes.**—Arsenic reduction. Each 10

7632. **Wash Bottles.**—With rubber stopper and tubes; 4 ounces. Each 35

7633. **Wash Bottles.**—8 ounces. Each 55

7635. **Watch Glasses.**—2-in. diameter. Per dozen 25

7638. **Watch Glass Clamps.**—Each 20

7641. **Wicks.**—For lamps. Each 10

For the Reagents required, consult List of Chemicals.

Blowpipe Outfits



7653

Ready packed: **Society of Arts' Blowpipe Apparatus,** awarded silver medal and prize of the Society of Arts. Each set has the seal of the society, and is guaranteed to be equal to that deposited at the society's house. These sets are unequalled for cheapness, quality, compactness, portability and in arrangement of apparatus.

7651. **Elementary Set.**—In wood box containing: Blowpipe, hammer, anvil, grease lamp, spirit lamp, scissors, lamp tweezers, brass tweezers, magnet, cupel striker, pastille holder, pastilles, platinum wire, tin foil, boiling dish, litmus paper, turmeric paper, Brazil wood paper, open tubes, closed tubes, glass rod, carbonate soda, micro salt, borax, bisulphate of potash, fluorspar, assay lead, bone ash, nitrate of cobalt $7 50

7652. **Prize Set A.**—In stained wood box. Contains: Blowpipe, spirit lamp, grease lamp, hammer, anvil, pestle and guard, platinum forceps, brass forceps, lamp tweezers, test tube holder, chisel, magnet, file, scissors, cupel striker, bone spatula, platinum wire, platinum foil, tin foil, magnesium, pastille and cupel holder, pastilles, boiling dish, open tubes, closed tubes, glass rod, blue glass, litmus paper, turmeric paper, Brazil wood paper, soda paper, carbonate of soda, microcosmic salt, borax, bone ash, fluorspar, assay lead, nitrate of cobalt, bisulphate of potash, oxide of copper, chloride of silver and potassic iodide and sulphur $14 00

7653. **Superior Set B.**—In polished mahogany box, with name-plate; containing in addition to above: platinum tip to blowpipe, agate mortar and pestle and gold bead $17 00

7654. **Best Set C.**—In mahogany box. It is similar to set B, but has in addition 48 carefully selected minerals in tubes, arranged in a drawer, which afford good examples in practice for both elementary and advanced students..... $20 00

Assay Outfits

7701. Assay Outfit for Prospectors.

1 Portable Button Balance and Weights.
1 Pulp Balance and Weights.
1 Calkins' No. 5 Combined Crucible and Muffle Furnace, with Advance Burner and 2½-gal. Tank.
2 Muffles.
100 Scorifiers.
100 Crucibles.
1 Iron Mortar and Pestle, 1 qt.
3 Pr. Tongs.
1 Magnifying Glass.
1 Cupel Mould.
1 Magnet.
1 Spatula.
Glass Rods and Tubes.
1 60-Mesh Sieve.
3 Beakers.
3 Watch Glasses.
1 Plattner Blowpipe.
1 Assay Mould.
3 Funnels.
1 Package 6-inch Filters.
1 Button Brush.
1 Wash Bottle.
6 Parting Flasks.
1 Tripod.
6 Annealing Cups.
2 Hammers.
4 lbs. Litharge.
5 lbs. Bicarbonate of Soda.
1 lb. C. P. Muriatic Acid.
1 lb. C. P. Nitric Acid.
10 lbs. Bone Ash.
2 lbs. Borax Glass.
¼ oz. C. P. Silver Foil.
1 lb. C. P. Rolled Lead.
10 lbs. C. P. Granulated Lead.
1 pint Alcohol.
2 lbs. Lead Flux.
1 Glass Alcohol Lamp.

The above outfit will be furnished complete, ready for shipment, for.....**$125 00**

The button balance mentioned above is the No. 518 of this catalogue, and the pulp balance is the No. 646; while the furnace is our No. 3883, with burner and small pressure tank.

We do not supply or quote gasoline, as this can be preferably obtained near the point of operation.

7702. **Assay Outfit.**—Similar to preceding, but with an iron-lined furnace, No. 3816, size 2, instead of the Calkins gasoline furnace. Complete**$105 00**

7706. **Assay Outfit for Mines.**—We give below a list of articles needed for the assay office of a mine. While said list may not meet all the requirements of the assayer, it will give a prospective purchaser an idea of what is generally needed, and will serve as a memorandum in making up a more suitable list. In many cases different balances, furnaces, crucibles or chemicals, etc., may be desired, in which case, if the customer will indicate by number the article preferred, we will be pleased to quote them net figures.

1 Button Balance (No. 504 or No. 527).
1 Pulp Balance (No. 651 or No. 661).
1 Set Gramme Weights, 50 grammes to 1/10 milligramme.
1 Set Assay Ton Weights, 1 A. T. to 1/20 A. T.
1 Furnace, Calkins' No. 10 Advance Combination, with Challenge Burner and 10-gal. Tank.
6 Muffles, 6x12x4.
400 Crucibles, 20 grammes.
1 doz. Annealing Cups.
500 Scorifiers, 2½-inch.
1 Calkins Crusher, Advance.
1 Calkins Disc Grinder (small).
1 Pr. Crucible Tongs.
1 Pr. Cupel Tongs.
1 Pr. Scorifier Tongs.
1 3-hole Crucible Mould.
2 12-hole Scorifier Moulds.
1 Cupel Tray, 16-hole.
1 Cupel Mould, 1½-inch, Brass.
1 Slagging Anvil.
1 Button Anvil.

2 Slag Hammers.
1 Button Hammer.
1 Pr. Slag Forceps.
1 Pr. Button Pliers.
1 Sampler, with scoop.
1 Burette Stand.
2 G. S. Burettes, 50x1/10 cc.
1 Funnel Stand.
6 Funnels.
1 Dangler Gasoline Lamp.
1 6-burner Alcohol Lamp.
1 Copper Water Bath.
1 Iron Stand, 3 rings.
½ Doz. 5-inch Sand Baths.
1 Wedgewood Mortar.
1 Magnet, 5-inch.
1 Set Cork Borers.
12 ft. Rubber Tubing.
6 Evaporating Dishes.
3 Casseroles (all porcelain).
6 Porcelain Crucibles No. 8.
1 Tripod.
3 Clay Triangles.
2 Spatulas.
1 Plattner Blowpipe.
1 Cylinder, open, 50 cc.
1 Pipette, 25 cc.
1 Magnifying Glass.
1 Diamond Mortar.
1 4-oz. Glass Lamp.
2 Nests of 6 Beakers.
6 Beaker Covers.
6 Copper Flasks.
6 Parting Flasks.
2 16-oz. Flasks.
2 Wash Bottles, complete.
2 pkgs. Filter Paper.
1 Graduate, 4-oz.
2 doz. Test Tubes.
1 Test Tube Rack.
1 Set Reagent Bottles.
5 Grammes Platinum Foil and Wire.
1 Camel Hair Brush.
3 Camel Hair Pencils.
3 Sieves, 40, 60 and 80 mesh.
1 Color Plate.
100 lbs. C. P. Gran. Lead.
25 lbs. Lead Flux.
50 lbs. Litharge.
25 lbs. Bicarbonate Soda.
100 lbs. Bone Ash.
5 lbs. Borax Glass.
5 lbs. Argols.
2 lbs. Rolled Lead.
1 oz. C. P. Silver Foil.
3 Sheets C. P. Copper Foil.
9 lbs. C. P. Sulphuric Acid.
14 lbs. C. P. Nitric Acid.
6 lbs. C. P. Hydrochloric Acid.
1 lb. Cyanide Potassium, 98/99.
4 lbs. Conc. Ammonia.
1 Box Gummed Labels, blank.

The outfit, as above described, ready for shipment, will be delivered, f. o. b. this city, for $395 00

7707. With Bucking Board and Muller (No. 4096) and Coke Furnace (No. 3816, Size 4), instead of the Disc Grinder and Calkins Furnace, we will furnish the outfit for $315 00

7711. Outfit for Copper Determinations by Cyanide of Potassium Method.

1 Analytical Balance, sensitive to 1/10 milligramme, with rider attachment.
1 Set Weights, 50 grammes to 1 milligramme, with riders.
1 Buckboard and Muller.
1 Sampler and Scoop.
1 Iron Mortar and Pestle, ½-gallon.
2 Sieves, 80 and 100 mesh.
1 Dangler Blast Lamp.
1 8-oz. Alcohol Lamp.
1 Stand, 3 rings.
½ doz. Sand Baths.
2 Funnel Stands.
6 Bunsen Funnels, 3½-inch.
6 Packages 7-inch Gray Filters.
3 Packages 18½ cm. S. & S. Filters.
1 Burette Support.
½ lb. Glass Tubing.
1 Porcelain Color Plate.
1 Apparatus, Sulphuretted Hydrogen.
2 LargeAmber Bottles.
6 ft. Rubber Tubing.
3 Pinchcocks.
½ doz. 4-inch Casseroles.
9 lbs. Com'l Sulphuric Acid.
1 lb. C. P. Sulphuric Acid.
6 lbs. Com'l Hydrochloric Acid.
7 lbs. Com'l Nitric Acid.
7 lbs. C. P. Nitric Acid.
8 lbs. Conc. Ammonia.
1 lb. Cyanide Potassium, 98/99.
½ Gallon Alcohol.

1 Graduate, 8 oz.
6 Beakers, 8 oz.
1 doz. Copper Flasks.
1 Cylinder, 10 cc.
4 Pipettes, 10 cc.
2 G. S. Burettes, 50x1/10 cc.
1 lb. Pure Gran. Zinc.
6 Sheets C. P. Copper Foil.
1 Gallon Distilled Water.
1 Book Chemical Labels.
1 Box Blank Labels.
2 Books Litmus Paper.

Besides the above, gasoline will be necessary. It can be procured at destination presumably, therefore we do not mention it.
Above outfit, packed and delivered, f. o. b.....$135 00

7716. Outfit for Beringer's Electrolytic Assay of Copper.

1 Analytical Balance with rider attachment, sensitive to 1/10 milligramme.
1 Set Weights, 50 grammes to 1 milligramme, with riders.
2 Daniell Cells, 1 quart.
1 Cylinder Platinum Cathode.
1 Spiral Platinum Anode.
6 Binding Posts.
6 Double Connectors.
12 ft. Copper Wire.
1 Sulph. Hydrogen Apparatus.
1 Kerosene Stove.
2 Funnel Stands.
6 Bunsen Funnels, 3½-inch.
6 Packages 7-inch Filters.
½ lb. Glass Rod.
6 Beakers, 6 ounces.
6 Beakers, 16 ounces.
1 Wash Bottle, 16 ounces.
6 Copper Flasks, 8 oz.
1 Cylinder, 100 cc.
6 Flint Glass Vials.
6 Watch Glasses.
1 Box Blank Labels.
1 lb. C. P. Nitric Acid.
1 lb. C. P. Hydrochloric Acid.
4 lbs. Conc. Ammonia, C. P.
1 lb. Ammonium Carbonate.
9 lbs. Com'l Sulphuric Acid.
5 lbs. Copper Sulphate.
1 Gallon Distilled Water.
½ Gallon Alcohol.

Kerosene will be needed in addition to the above, but we do not furnish it as we suppose that it can be obtained at destination.
Outfit, as above, complete and ready for shipment.....$125 00

Mineral Collections for Schools

7751. Scale of Hardness.—In hardwood case, with streak plate and file.

1 Taln.
2 Gypsum.
3 Calcite.
4 Fluorite.
5 Apatite.
6 Orthoclase.
7 Quartz.
8 Topaz.
9 Corundum.
10 Diamond.

Complete$2 50

7756. Scale of Fusibility.

1 Stibnite.
2 Natrolite.
3 Almandite.
4 Actinolite.
5 Orthoclase.
6 Bronzite.

Per set$1 50

7761. Blowpipe Collection.

Consists of 50 selected specimens, each in a pasteboard box, which is correctly labeled. Per set$2 50

Price List of Acids, Chemicals and Reagents

The prices mentioned in this list are **not** guaranteed, but are subject to the market fluctuations. Prices include containers, unless otherwise stated, and where packages smaller than one pound are called for, an extra charge is made to cover additional cost of containers. In large quantities special quotations will be given.

Notice.—Mineral acids can be shipped only once a week, as the railroad companies will not receive them with other goods.

	Per oz.	Per lb.
Acetamide	$0 55	
Acetanilid	10	$0 50
Acetone		55
Acid—Acetic.—No. 8, pure, Sp. Grav. 1.040		65
" " No. 8, in 5-lb. bottles		15
" " Glacial, 99 per cent, U. S. P.		55
" **Arsenic**	20	1 60
" **Arsenious.**—Powdered, pure		35
" **Benzoic**	20	1 40
" **Boracic.**—C. P.		50
" " Commercial		30
" **Carbolic.**—C. P., loose, cryst.		80
" **Chloric.**—Pure	25	
" **Chloro-Acetic.**—Pure	50	
" **Chromic.**—Pure cryst.	15	75
" " C. P.	20	1 60
" " Commercial		50
" **Citric.**—C. P.	15	1 20
" " Commercial		50
" **Formic**	20	1 50
" **Gallic**	15	1 00
" **Hydrobromic.**—C. P., Sp. Grav. 1.49	35	3 50
" **Hydrochloric**—"Muriatic."—**Commercial**, 22° Beaumé—		
In bottles of about 6 lbs., per bottle $0 75		
In carboys of about 100 lbs.		04
Carboys charged at $2.50 each and refund allowed on the same when returned.		
" **Hydrochloric.**—C. P., Sp. Grav. 1.20, free from all impurities.		
In 1-lb. bottles		40
In 6-lb. bottles (plus 25c for bottle)		15
" **Hydrofluoric.**—In rubber bottles		1 60
" **Hydrofluosilicic.**—C. P.	35	2 00
" **Hydriodic**	50	
" **Hypophosphorous**	25	
" **Lactic**	15	1.50
" **Malic**	1 00	
" **Molybdic.**—C. P.	45	
" **Muriatic.**—(See Hydrochloric.)		

N. B.—Prices are not guaranteed.	Per oz.	Per lb.
Acid—Nitric.—Commercial, 38° Beaumé—		
In bottles of about 7 lbs., per bottle $1 00		
In carboys of about 130 lbs.		$0 07
Carboys charged at $2.50 each and refund allowed on the same when returned.		
" Nitric.—C. P., Sp. Grav. 1.42, free from all impurities, organic matter, etc.		
In 1-lb. bottles		40
In 6-lb. bottles (plus 25c for bottle)		15
" Nitric.—Fuming; Sp. Grav. 1.48, C. P.		95
" Oleic	$0 60	
" Oxalic.—C. P., cryst.		50
" " Commercial; in bulk		18
" Perchloric	60	
" Phosphomolybdic	1 50	
" Phosphoric.—Glacial		80
" " U. S. P.; diluted		65
" " Syrupy; 85 per cent		65
" Picric.—C. P.	25	
" Pyrogallic.—C. P.; resublimated	30	2 50
" Rosolic	35	
" Salicylic.—In bulk		50
" Silicic.—Silica	15	1 00
" Stearic		
" Succinic	75	
" Sulphanilic	35	
" Sulphuric.—Commercial, 66° Beaumé—		
In bottles of about 9 lbs., per bottle $0 75		
In carboys of about 180 lbs.		01½
Carboys charged at $2.50 each, and refund allowed on the same when returned.		
" Sulphuric.—In drums of 1,600 lbs.; quotations given.		
" Sulphuric.—C. P. absolutely, of Spec. Grav. 1.845—		
In 1-lb. bottles		40
In 9-lb. bottles (plus 25c bottle)		15
" Sulphuric.—Fuming or Nordhausen		55
" Sulphurous		40
Carboys are charged extra at $2.50 each; their value is allowed on their return.		
" Tannic.—"Tannin" in bulk		80
" Tartaric.—Cryst.; in bulk		45
" " Powdered; in bulk		45
" " C. P., cryst.		80
Albumen Blood		80
" Egg		80
Alcolol.—Absolute; per qt., $1.00; per pt. $0 55		
" 95 per cent, in 4¾-gal. tins; per gal. 3 10		
" 95 per cent, in 1-gal. tins; per gal. 3 15		
" 95 per cent, in ½-gal. bottles; each 1 60		
" 95 per cent, per qt., $0.85; per pt..... 45		
" Amylic		1 15
" Wood.—"Methyl"; per gal., $1.15; per qt., $0.40; per pt., $0.30		

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Aldehyde.—Conc.		$1 60
Alizarin.—Dry	$0 80	
Alum—Ammonia.—Pure		35
" Chromic.—C. P.		40
" Commercial.—In bulk		10
" Ferric Ammoniacal.—Cryst.		60
" Ferrous Ammoniacal.—Cryst.		55
" Potassic		60
" Sodic		70
Aluminum—Acetate	15	1 40
" Chloride	15	1 35
" Fluoride	30	3 50
" Nitrate.—Dry	15	1 50
" Oxide	20	2 00
" Powder	30	
" Phosphate.—C. P.	20	2 00
" Sulphate	15	1 00
" Tartrate.—C. P.	40	
Ammonia—Aqua.—20° Beaumé; in 1-lb. bottles		30
In 4½-lb. bottles; per bottle	$1 00	
Ammonia—Liq. Con.—26° Beaumé, U. S. P. stronger—		
In 1-lb. bottles; per bottle	$0 40	
In 4-lb. bottles; per bottle	1 00	
Quotations given for above in carboys and cases.		
Ammonium—Acetate.—Pure	15	1 75
" Arseniate	15	1 75
" Arsenite	15	1 50
" Bicarbonate.—C. P., cryst.	10	90
" Bichromate.—C. P., cryst.	15	1 00
" Bisulphate.—C. P., cryst.	15	1 00
" Bisulphite	25	2 60
" Bromide	25	2 00
" Carbonate.—Commercial		25
" " C. P.		40
" Chloride.—Sal. Ammoniac; crude, in bulk, lump		15
" " Sal. Ammoniac; crude, powdered		15
" " C. P., gran.		30
" Chromate.—Neutral; pure	35	
" Citrate.—Liquid	25	
" Fluoride.—In rubber bottles		2 20
" Hydrosulphate.—(Sulphide) solution		40
" Iodide	40	
" Molybdate	30	
" Nitrate.—Fused or granulated		40
In 5-lb. boxes		30
" Oxalate.—C. P.	15	1 00
" Phosphate.—Pure	15	1 00
" Phosphomolybdate	1 10	
" Succinate.—C. P., cryst.	45	
" Sulphate.—Purified	10	50
" Sulphide.—Solution		40

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Ammonium—Sulphite.—C. P.	$0 20	$1 30
" Sulphocyanide.—Pure	20	1 25
" Tartrate	70	10
Aniline Oil	15	75
Aniline Methyl Orange	40	
Antimony Metallic.—C. P.		60
" " Commercial; in bulk		20
" Chloride.—C. P.	20	1 80
" Oyxchloride.—Pure	20	
" Oxide.—White	20	1 25
" Potassic Tartrate.—"Tartar Emetic," C. P., U. S. P., cryst.		1 00
" Sulphuret	15	1 15
" Tartrate.—Pure, neutral	40	
Argols—Red.—Powdered; in bulk		12
Quotations given on 350-lb. barrels.		
Arsenic—Metallic.—C. P., cryst. or powd.		60
" Bromide.—C. P.	30	
" Chloride	40	
" White		20
Asbestos—Long Fiber		1 00
Barium—Metallic.—Per gramme $12 00		
" Acetate.—C. P.	15	1 00
" Bromide	35	
" Carbonate.—C. P.	20	1 20
" " Precipitate		50
" Caustic or Hydroxide.—C. P.	15	85
" Chlorate.—C. P.	15	75
" Chloride or Muriate.—C. P., cryst.		35
" Chromate	15	1 00
" Cyanide	80	
" Iodide	50	
" Nitrate.—Cryst., pure		50
" Nitrite	25	
" Oxalate	15	85
" Oxide Anhydrous	10	50
" Oxide Hydrated.—(See Caustic.)		
" Sulphate.—Pure, precip.	10	60
" Sulphide.—Pure	10	70
Beeswax.—In bulk		45
Benzol.—Purified, 90 per cent		50
Bismuth—Metallic.—Pure; in bulk	25	3 00
" Acetate	50	
" Bromide	50	
" Chloride	45	
" (Chloride)—Oxychloride	25	
" Hydrate	35	
" Nitrate.—Pure, cryst.	25	
" Oxide.—Hydrated; pure	35	
" Subnitrate	25	

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Bleaching Powder—Chloride of Lime.—In 1-lb. cartons		$0 15
In barrel lots, quotations given.		
Bone Ash—No. 2 or Coarse.—In bulk		05
" " **No. 1.**—In bulk		06
" " **No. 1 Extra.**—In bulk		07
" " **No. 1 Extra.**—Washed		15
Per ton or barrel, quotations given.		
Bone Black.—(See Charcoal.)		
Borax.—Concentrated		10
" **Refined.**—Cryst.		10
" " Powdered		11
Quotations given on large lots.		
" **Glass.**—Powdered		25
Quotations given on large lots.		
" **Glass.**—C. P., cryst.		25
Brazil Wood—Test Paper.—Per dozen $0 50		
Brimstone.—(See Sulphur.)		
Bromine	$0 25	1 00
Cadmium—Metallic.—In sticks	25	
" **Acetate**	25	
" **Bromide**	25	
" **Chloride**	25	
" **Hydrate**	50	
" **Iodide**	35	
" **Nitrate.**—Pure, cryst.	25	
" **Sulphate**	25	
" **Sulphide**	35	
Calcium—(Lime) Acetate.—C. P.		90
" **Bromide**	30	
" **Carbonate.**—Bulk		10
" **Chloride.**—Fused, C. P.		50
" " Gran., C. P.		50
" **Fluoride.**—"Fluorspar," lump		20
" " Powder		20
" **Hypochlorite.**—Commercial		15
" **Lactophosphate**	20	
" **Nitrate.**—C. P.	20	1 10
" **Oxalate.**—C. P.	20	
" **Phosphate.**—Precip.		50
" **Sulphate.**—Pure precip.		40
" **Sulphide**		60
" **Sulphite**	10	60
" " C. P.	15	1 60
" **Tartrate**		
Carbon—Bisulphide.—Sol., pure		60
In 5-gal. tins; per gal. $1 25		

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Cerium—Bisulphate	$0 35	
" Chloride	35	
" Nitrate	25	
" Oxalate	15	
Chalk—Precipitated		$0 10
Charcoal—Animal.—"Bone Black," powdered		10
" Willow.—Powdered; in bulk		10
Quotations given for large lots.		
Charcoal—Willow.—Powdered; in ½-lb. bottles; per doz. $2 00		
" " Squares; per doz. 50		
Chloroform		75
Chromium—Chloride	1 00	
" Nitrate	25	
" Oxide	20	
" Sulphate	25	
Cobalt—Metallic	35	4 00
" Acetate	50	
" Carbonate	40	
" Chloride.—Cryst.; pure	30	
" " Solution	25	
" Chromate	40	
" Nitrate.—Cryst.; pure	40	
" " Solution	30	
" Oxalate	30	
" Oxide.—Dry	45	
" Sulphate	30	
Cochineal	10	60
Collodion	20	
Copper—Metallic.—Gran., C. P.		70
" " Turnings		50
" " Foil or sheet; C. P.		80
" Acetate.—C. P.; cryst.	15	80
" Arseniate	20	
" Carbonate.—C. P.	15	90
" Chloride	15	90
" Cyanide	20	1 80
" Iodide	45	
" Nitrate.—C. P.	15	70
" Oxide.—Red; pure	20	1 60
" " Black	15	1 00
" Sulphate.—"Bluestone"; in bulk		15
Per ton or barrels, best market rates.		
" Sulphate.—Pure		55
" Sulphide	10	75
Cotton Absorbent		50
Cream of Tartar.—(See Potassium Bitartrate.)		
Dextrine		15

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Dextrose		$2 50
Diphenylamine	$0 40	
Eikonogen	35	
Eosine—Yellow	30	
Ether—Acetic		1 20
" Butyric		1 50
" Formic		2 20
" Sulphuric.—U. S. P., in 1-lb. bottles		80
" " In 3½-lb. bottles		70
" " Squibbs'		1 30
" " Anhydrous		2 50
Fire Clay.—In small lots		06
Per barrel lots at market rates.		
Fluorspar.—(See Calcium Fluoride.)		
Flux—Black		1 00
" White		1 00
" Plattner's.—Lead		1 50
Formaldehyde		40
Fullers' Earth		12
Glass—Powdered.—Fine		10
" Wool	1 00	
Glucose		15
Glycerine—Conc.—Pure		40
" " In 10-lb. tins		23
Gold—Metallic.—In sheets, for proof	40 00	
" Chloride.—Dry; in 15-gr. bottles; each $0 50		
" and Sodium Chloride.—In 15-gr. bottles 30		
Graphite—Finest.—Pulv.		20
" Pulv.—In bulk		16
Hide Powder		2 10
Hydrochinon	20	1 60
Hydrogen Peroxide.—U. S. P.		35
Indigo	15	90
Infusorial Earth		30
Iodine—Resubl	35	4 50
Iron—Metallic.—Turnings; in bulk		10
" " Filings; in bulk		20
" Wire.—C. P., for analysis; in 1-oz. spools	15	
" By Hydrogen	80	
" Acetate.—In scales	25	
" Arseniate	25	

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Iron—Arsenite	$0 25	
" Chloride, Ferric (Sesquichloride)		$0 50
" " Ferric (Protochloride)		1 00
" Citrate.—Ferrous form		1 00
" Ferrocyanide.—"Prussian Blue"	15	
" Iodide	40	
" Oxalate	25	
" Oxide.—Black		90
" " "Red Anhydrous"		75
" Phosphate	15	1 00
" Sulphate.—"Copperas"; in bulk		05
Per ton or barrel best market rates.		
" Sulphate.—C. P.		25
" Sulphide.—(Sulphuret); in bulk		20
" Tannate	25	
" Tartrate	30	
" Valerianate	25	
Iron and Ammonia Citrate		70
" " " Tartrate		1 00
" " " Sulphate; "Iron Alum," Ferric	10	60
" " " " "Iron Alum," Ferrous	10	80
Kaolin—Pulverized		10
Lactose		30
Lead—Metallic.—Rolled in sheets; for assay		20
" " Gran.; for assay		20
" " Small bars		15
Prices quoted for larger quantities.		
" Acetate.—"Sugar of Lead"; commercial		20
" Acetate.—C. P.		50
" Bichromate	15	
" Carbonate.—Pure		80
" Chloride.—Pure		85
" Chromate.—Pure; fused	15	1 00
" Iodide	30	
" Nitrate		25
" " U. S. P.; pure		50
" Oxide.—Litharge; pure, for assaying; in bulk		09
" " " in 25-lb. tins or 100-lb. kegs		08
Quotations given for large lots.		
" " C. P.		15
" Peroxide.—PbO_2	10	1 00
" Red Peroxide.—Pb_3O_4 (minium)	15	
" Phosphate	30	

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Lead—Sesquioxide.—(Red Lead)		$0 10
" **Sulphate**		60
" **Tartrate**	$0 30	2 00
Lime.—(See Calcium.)		
Litharge.—(See Lead Oxide.)		
Lithium—Acetate	35	
" **Bromide**	55	
" **Carbonate**	35	
" **Chloride**	25	
" **Citrate**	25	
" **Iodide**	40	
Litmus—Cubes		40
" **Granular**		40
" **Paper.**—In sheets; red or blue. Per doz.	$0 50	
" " In books; red or blue. Per doz.	50	
Lye—Conc.—Gran.; in cases of 48 1-lb. tins	3 25	
Magnesium—Metallic.—In ribbon form	50	
" " In wire form	50	
" " In powder	30	4 00
" **Carbonate**		25
" **Chloride.**—C. P., cryst.	10	65
" **Nitrate**		75
" **Oxide**		75
" **Sulphate.**—C. P., cryst.		45
" " Epsom Salts; in bulk		10
Maltose	1 35	
Manganese—Carbonate	15	80
" **Chloride**	10	80
" **Oxide.**—Black; per ton, fine ground, in bags, for chlorination work; quotation given.		
" **Oxide.**—Black; in bulk		10
" **Sulphate.**—Pure cryst.		70
Marble—Chips		10
" **Dust**		10
Mercury or Quicksilver.—In small quantities		80
" " In 75-lb. iron flasks; quotations given at lowest market prices.		
Mercury—Bichloride.—Corrosive Sublimate, Merck's Recryst.	15	1 60
" " Commercial		1 10
" **Bisulphate**		1 60
" **Chloride.**—Calomel or Mercurous Chloride	15	1 10
" **Cyanide**	35	
" **Oxide.**—Black of Mercurous	20	1 80
" " Red or Mercuric, levigated	20	1 80
" **Nitrate.**—Mercuric	25	1 60

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Mercury—Nitrate.—Mercurous	$0 25	$1 60
" Sulphate	20	1 90
" Sulphide.—Black, Mercurous	20	
" " Red, Mercuric	15	
Methol	80	
Methyl Orange	40	
Microscomic Salt.—(See Sodium Ammon. Phosph.)		
Milk Sugar		30
Molybdenium—Metallic.—1-gramme bottles	$0 60	
Naphthylamine—Alpha	45	
" Beta	45	
Nessler Solution		1 50
Nickel—Metallic.—In cubes		1 10
" " In slabs; for anodes in plating		80
" Acetate	50	
" Bromide	60	
" Chloride	30	
" Nitrate.—Pure	25	
" Oxalate	50	
" Oxide.—Black	60	
" Phosphate	50	
" Sulphate	25	
" and Ammonia Sulphate	15	60
Nitre.—(See Potassium Nitrate.)		
Nutgalls—Powdered.—Bulk		40
Ortol	75	
Paraffine.—In cakes		15
Phenolphthlein.—Pure	45	
Phosphorous—Red, Amorphous	30	2 00
" Yellow.—In sticks	25	
Phenylhydrazine Pentachloride	60	
" Trichloride	60	
Plaster of Paris		10
Platinum—Metallic.—(See page 192.)		
" Bichloride.—Dry	25 00	
" " Solution 10 per cent	3 00	
Plumbago.—(See Graphite.)		
Potassium—Metallic.—In ½-oz. bottles. Each	$1 00	
" " In ⅛-oz. bottles. Each	35	
" Acetate	10	75
" " C. P.	20	1 00
" Antimoniate.—Pure	25	

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Potassium—Arsenate.—C. P.	$0 20	
" Arsenite.—Pure	20	
" Bicarbonate.—Pure	15	
" Bichromate.—C. P.; cryst.	15	$0 65
" " Commercial; for batteries, in bulk		20
" Bioxalate.—(Sal. Acetosella)	15	
" Bisulphate.—C. P.; fused		70
" Bisulphate.—Pure		50
" Bitartrate.—Cream of Tartar; pure	15	70
" " " " in bulk		40
" Bromide.—C. P.	15	1 00
" Carbonate.—Salt of Tartar		25
" " In 5 or 10-lb. tins		20
" " C. P.	15	70
" Caustic.—White, purified; in sticks		40
" " C. P., by alcohol; in sticks	10	70
" Chlorate.—In bottles; C. P.	10	40
" " In bulk		18
" Chloride.—C. P.		40
" Chromate.—C. P.	10	75
" " In bulk		60
" Cyanide.—C. P.; 98-99 per cent, for the Cyanide process		45
" " " 98-99 per cent, in 10-lb. tins		35
" " " in 112-lb. cases or ton lots—quotations given.		
" " Fused, for plating; in 1-lb. bottles		50
" " Fused, in 10-lb. tins		45
" " Mining; for milling		40
" " Mining, in 10-lb. tins		35
Quotations given on Fused and Mining Cyanide in 120-lb. case lots.		
" Ferricyanide.—C. P.	15	1 15
" " Commercial; in bulk		65
" Ferrocyanide.—Yellow Prussiate; C. P.	10	80
" " Commercial		35
" Hydroxide.—(See Caustic, above.)		
" Iodide.—Pure	30	3 25
" Nitrate.—Nitre; C. P.	20	1 25
" " Refined English; in bulk		10
Prices quoted in 112 or 300-lb. lots.		
" Nitrite.—C. P.; in sticks	20	1 60
" Oxalate.—Acid; Sal Acetosella		60
" " Neutral; pure		35
" Permanganate.—C. P.; cryst.	20	80
" " Commercial		35
" Phosphate	10	80
" Silicate		45
" Sulphate.—C. P.		60
" " Pure; powdered		30
" Sulphide.—Sulphuret		30
" Sulphite		60

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Potassium—Sulphocyanate.—C. P.	$0 15	$1 20
" Tartrate.—C. P.	15	1 20
" and Sodium Tartrate.—Rochelle Salt		60
" with Lime.—Vienna Caustic	25	
Pumice Stone—Lump or Powder.—In bulk		10
Quartz	10	
Rosin—Lump.—In bulk		05
" " Per barrel of 280 lbs.		
Rottenstone.—In bulk		10
Ruddle.—In sticks; in bulk		20
Salt.—In sacks		03
Saccharose		1 35
Silex—Powdered Quartz		15
Silica or Fine White Sand		03
Silver—Metallic.—100° fine; in sheets	1 25	
" Amalgam	50	
" Chloride	90	
" Cyanide	1 30	
" Iodide	1 20	
" Nitrate.—Cryst.	70	
Soda Lime		55
Sodium—Metallic	20	2 00
" Acetate.—C. P.	10	50
" Amalgam	20	1 20
" Arsenate.—C. P.	20	
" Arsenite.—C. P.	20	
" Biborate.—C. P.; cryst.—(See also Borax)	20	
" Bicarbonate.—C. P.		30
" " English; in bulk		09
In 112-lb. kegs, quotations given.		
" Bichromate.—C. P.	15	65
" " Commercial; for batteries		30
" Bisulphate.—Pure cryst.		70
" Bisulphite.—Pure cryst.		70
" Bromide	20	
" Carbonate.—C. P.; dry		40
" " (Sal Soda); cryst. in bulk		03
In barrel or ton lots, quotations given.		
" " Crude (Soda Ash); in bulk		05
Prices quoted for large lots.		
" Cuastic.—C. P.; by alcohol, in sticks		70
" " Purified by lime		40
" " Commercial; 60 and 70 per cent, in drums—prices quoted.		
" " Commercial; 98 per cent, in 10-lb. tins		10
" Chlorate.—Pure; cryst.	10	60

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Sodium—Chloride.—Salt; C. P.	$0 10	$0 50
" " Salt, ½ ground, for chlorination, in sacks, prices quoted.		
" **Citrate**	15	1 25
" **Hydroxide.**—(See Sodium Caustic.)		
" **Hyposulphite.**—C. P.	...	35
" " English; refined, in bulk		07
In 112-lb. kegs, quotations given.		
" **Nitrate.**—C. P.; cryst.	15	90
" " Commercial; in bulk	10	40
Prices quoted for large quantities.		
" **Nitrite.**—C. P.; in sticks	15	90
" **Nitroprussiate.**—C. P.	55	
" **Oxalate.**—Neutral; C. P.	15	70
" **Oxide.**—(See Caustic.)		
" **Peroxide**		1 00
" **Phosphate.**—Twice purified; cryst.		40
" **Phosphite.**—Pure	60	
" **Silicate.**—"Water Glass"; solution		25
" " " " cryst.		1 00
" **Sulphate.**—C. P.		30
" " Glauber Salts; purified		06
" **Sulphide.**—Sulphuret; dry, C. P.		60
" " Cryst.		50
" **Sulphite.**—Cryst		30
" **Tartrate**	20	
" **Tungstate.**—Wolframite; pure	25	
" **Valerianate**	55	
Starch		15
Steel—Metal Filings		15
" " **Piano Wire**	10	
Strontium—Acetate	20	
" **Carbonate**		70
" **Caustic.**—Oxide	20	1 40
" **Chloride.**—Muriate; cryst.	15	1 20
" **Nitrate.**—Pure; dry		80
" **Oxalate**	20	1 10
" **Sulphate.**—Purified	15	
Strychnine	20	
Sulphur—Ground.—In bulk		03
" **Sublimed.**—In bulk		05
" **Roll.**—Brimstone; in bulk		10
By the barrel or sack, prices given on all kinds.		
" **Chloride**	15	
Tannin.—(See Tannic Acid.)		
Tin—Metallic.—Small bars; pure		30
" " Gran. or small bars; C. P.		1 00
" " Thin sheet; pure		65

N. B.—Prices are not guaranteed.

	Per oz.	Per lb.
Tin—Chloride.—(Muriate); Stannous, pure cryst.		$0 70
" Oxide.—White powd.; pure cryst.	$0 20	1 25
Trumeric—Powder	15	
" Paper.—Per dozen sheets $0 50		
Tungsten.—Per gramme 15		
Uranium—Acetate.—C. P.	60	
" Chloride.—C. P.	60	
" Nitrate.—C. P.	60	
" Oxalate.—Cryst.	60	
Water—Distilled.—Per gallon $0 10		
Wood Naphtha.—Per qt., $0.40; per pt. 20		
Xylol		90
Zinc.—Metallic.—Coarse gran.; Commercial		40
" " Small bar of gran.; C. P.		60
" " Fine powder; C. P., Merck's		75
" Acetate		55
" Amalgam		1 25
" Bromide		25
" Carbonate.—Pure, prec.		45
" Chloride.—Dry	15	60
" Cyanide	30	
" Nitrate	15	1 20
" Oxide.—C. P.; by wet process		40
" " Gran.; by dry process		25
" Phosphate	15	1 00
" Sulphate.—Pure cryst.		40
" Sulphide	20	

" Shavings for the cyanide process—

Coarse
Medium
Fine
Extra Fine
} —Quotations given

Zinc Sheets.—For making shavings, 18 x 84 inches, or 36 x 84 inches. Prices quoted.

The prices quoted in this list are not guaranteed. We make a specialty of Grasselli Chemical Co.'s Acids and of Merck & Co.'s Reagents.

Text Books

Aaron (C. H.)—Manual of Assaying; in three parts.

Part I—Gold and Silver Ores $ 1 00

Parts II and III combined—Illustrating Gold and Silver, Bullion, Humid Assay Process, Lead, Mercury, Copper, Tin, Antimony, Zinc, Sulphur, etc. 1 50

Adams (W. J.)—Hints on Amalgamation and the General Care of Gold Mines... 2 00

Allen (Alfred H.)—Commercial Organic Analysis. A treatise on the properties, examination and analysis of various organic chemicals and products used in manufactures, medicines, etc.

Vol. I—Preliminary Examination of Organic Bodies. Alcohols, Ethers, Starch, Sugar, Acid Derivaties of Alcohol, etc. 4 50

Vol. II, Part I—Fixed Oils, Fats, Waxes, Soaps, Nitro-glycerin and Dynamite, Wool Fats, etc. 3 50

Vol. II, Part II—Hydrocarbons, Terpenes, Resins, Camphors, Benzine Derivatives, Phenols, etc. 3 50

Vol. II, Part III—Terpenes, Essential Oils, Resins, Camphors, Aromatic Acids, etc. 4 50

Vol. III, Part I—Acid Derivatives of Phenols, Aromatic Acids, Dyes and Coloring Matters 4 50

Vol. III, Part II—Amines and Ammonium Bases, Hydrazines and Derivatives. Bases from Tar, Vegetable Alkaloids, Tea, Coffee, Opium, etc. 4 50

Vol. III, Part III—Vegetable Alkaloids concluded, Non-basic Vegetable Bitter Principles. Animal Bases and Acids, Cyanogen and Derivatives 4 50

Vol. IV—Proteids and Albuminous Principles. Proteoids or Albumenoids 4 50

Anderson (J. W.)—The Prospector's Handbook. A guide for the prospector and traveler in search of metal-bearing or other valuable minerals..... 1 50

Argall (P. H.)—Western Mill and Smelter Methods of Analysis. A practical handbook for the assayer and chemist 1 50

Armstrong (Henry F.)—Introduction to Study of Organic Chemistry; the Chemistry of Carbon Compounds 1 50

Andre (Geo. G.)—A Descriptive Treatise on Mining Machinery, Tools and Other Appliances Used in Mining. In two quarto volumes, containing plates, with descriptive letter-press 28 00

Andre (Geo. G.)—Rock Blast. A practical treatise on the means employed in blasting rock for industrial purposes. Illustrated, 8vo..... 3 00

Attfield (Neil)—Chemistry: General, Pharmaceutical and Medical. 12mo. Cloth 2 75

Atwood (G.)—Practical Blowpipe Assaying. 12mo. Illustrated 2 00

Bain (H. Foster)—More Recent Cyanide Practice. A companion book to F. A. Rickard's Recent Cyanide Practice 2 00

Barff (S.)—An Introduction to Scientific Chemistry; for Use of Schools..... 2 00

Bayley (Thos.)—Chemist's Pocket Book. A Pocket Book for Chemists, Chemical Manufacturers, Dyers, Distillers, Brewers, Sugar Refiners, Photographers, Students, etc. 32mo. Limp leather 2 00

Beringer (C. & J. J.)—Text-book of Assaying. For the use of those connected with mines. With numerous diagrams and tables 3 25

Blair (A. A.)—The Chemical Analysis of Iron. A complete account of all the best known methods for the analysis of iron, steel, pig iron, iron ore, limestone, slag, clay, sand, coal, furnace and producer gases..... $4 00

Blount (B.) & Bloxam (C.)—Vol. I—Chemistry of Engineering, Building and Metallurgy 3 50
Vol. II—Chemistry of Manufacturing Processes 4 50

Bloxam (C. L.)—Laboratory Teaching or Progressive Exercises in Practical Chemistry 1 75

Bloxam & Huntington—Metals: Their Properties and Treatment. By C. L. Bloxam and A. K. Huntington 2 00

Bodeman & Kerl—A Treatise on the Assaying of Lead, Silver, Copper, Gold and Mercury. From the German of Thomas Bodeman and Bruno Kerl. By W. A. Goodyear. With plates 2 00

Bolton (C. D.)—The Student's Guide in Quantitative Analysis. 8vo. Cloth..... 1 50

Bosqui (Francis L.)—Practical Notes on the Cyanide Process 2 50

Bowie (Aug. J., Jr.)—Practical Treatise on Hydraulic Mining in California, with Description of the Use and Construction of Ditches, Flumes, Pipes, etc.... 5 00

Bowman (J. E.)—An Introduction to Practical Chemistry; Including Analysis... 2 00

Brannt (Wm. T.)—Techno-Chemical Receipt Book: Containing a great number of valuable receipts in technical chemistry. Illustrated..... 2 00

Brannt (Wm. T.)—A Practical Treatise on the Raw Materials and Distillation and Rectification of Alcohol and the Preparation of Alcoholic Liquors, etc. 2 50

Brannt (Wm. T.)—A Practical Treatise on Animal and Vegetable Fats and Oils, Comprising both Fixed and Volatile Oils, Their Physical and Chemical Properties and Uses, Manner of Extracting Them and the Practical Rules for Testing Them. Illustrated 12 50

Brough (B. L. H.)—A Treatise on Mine Surveying. Illustrated 2 50

Brown (W. L.)—A Manual of Assaying. Illustrated 2 50

Brush (Geo. L.)—Manual of Determinative Mineralogy and Introduction to Blowpipe Analysis. New edition. Illustrated 4 00

Butler (G. M.)—A Pocket Handbook of Minerals. For use in the field or class room, with little reference to chemical tests 3 00

Cairns (Fred A.)—Manual of Quantitative Chemical Analysis. For the use of students. New edition revised 2 50

Church (J. H.)—The Laboratory Guide: A Manual of Practical Chemistry for Schools and Colleges. Specially arranged for agricultural students. Illustrated 2 50

Classen (Dr. A. C.)—Quantitative Chemical Analysis by Electrolysis. Translated from the German. By Wm. H. Herrick, A. H. Illustrated..... 3 00

Classen (Alex)—Elementary Quantitative Analysis. Translated by E. F. Smith. 12mo. Illustrated 2 00

Clennel (J. E.)—Chemistry of Cyanide Solutions Resulting from the Treatment of Ores. With tables. 8vo. Cloth, 160 pages 2 50

Cohn (Alfred I.)—Tests and Reagents, Chemical and Microscopical. Compiled for the use of chemists, microscopists, druggists, etc. Authors' names are given, together with an index of subjects. 8vo. Cloth..... 3 00

Cohn (Alfred I.)—Indicators and Test Papers. Their source, preparation and application 2 00

Cooke (J. F.)—Laboratory Practice 1 00

Cooke (J. P.)—The New Chemistry $2 00

Coop (H. N.)—American Mining Code. Containing the mining laws of the United States and of several States and Territories 50

Cornwall (N. B.)—Manual of Blowpipe Analysis, Qualitative and Quantitative, with a Complete System of Determinative Mineralogy. Illustrated by 69 wood-cuts and one lithographic plate. 308 pages 2 50

Crafts (J. M.)—A Short Course in Qualitative Analysis 1 50

Crooks (Wm.)—Selected Methods in Chemical Analysis; Chiefly Inorganic. Second edition; rewritten. 37 wood-cuts, 725 pages, 8vo..... 8 00

Crookes & Rohrig (Kerl)—A Practical Treatise on Metallurgy. Adapted from German. In 3 volumes. 8vo.

Vol. I—Lead, Silver, Zinc, Cadmium, Tin, Mercury, Bismuth, Nickel, Gold, Arsenic, Platinum, Antimony 10 00

Vol. II—Copper and Iron 15 00

Vol. III—Steel Fuel, and Supplement 15 00

Crosby (W. O.)—Tables for the Determination of Common Minerals..... 1 25

Crosby (W. O.)—Common Minerals and Rocks 60

Dana (E. S.)—A Text-book of Mineralogy, with an Extended Treatise on Crystallography and Physical Mineralogy. Illustrated. 476 pages. On the plan and with the co-operation of Prof. J. D. Dana 3 50

Dana (E. S.)—A New System of Mineralogy. Embodying the results of the last twenty-four years of active progress, within which time nearly one thousand new names have been introduced into the science. The habits of crystals, methods of twining, and the physical characters, especially those on the optical side, have been carefully studied. A Mineralogist's Bible.. 12 50

Dana (E. S.)—Minerals and How to Study Them. A popular study on the subject 1 50

Dana (J. D.)—Manual of Mineralogy and Lithology. Containing the Elements of the Science of Minerals and Rocks. Illustrated. 474 pages..... 2 00

Dana (J. D.)—The Geological Story Briefly Told. An introduction to Geology for beginners in the science. Illustrated 1 50

Dana (J. D.)—A Text-book of Geology. For schools and academies. Illustrated 2 50

Dana (J. D.)—A Manual of Geology. Treating of the principle of the science. Illustrated 5 00

Davies (D. C.)—Earthy and Other Minerals and Mining. Illustrated..... 5 00

Douglas & Prescott—Qualitative Chemical Analysis. A guide in the practical study of chemistry and in work of analysis 3 50

Eissler (M.)—Metallurgy of Gold. A practical treatise on the metallurgical treatment of gold-bearing ores; including the process of concentration and chlorination, and the assaying. melting and refining of gold..... 5 00

Eissler (M.)—Metallurgy of Silver. A practical treatise on the roasting, amalgamation and lixiviation of silver ores, including the working of silver bullion. Illustrated 4 25

Eissler (M.)—The Cyanide Process for the Extraction of Gold. Describing the erection of the plant, the Simens-Holke process, particulars of operations, chemistry of process, etc. Illustrated 3 00

Eissler (M.)—Hydrometallurgy of Copper. An account of the processes adopted in the hydrometallurgical treatment of copper ores 4 50

Elderhorst (W.)—Blowpipe Analysis and Determinative Mineralogy. Fifth edition 2 75

Eliot & Storer—A Compendious Manual of Qualitative Analysis. Illustrated.... $1 75

Erni (H.)—Mineralogy Simplified. Identification of minerals and ores by the blowpipe, by flame reactions, by spectroscope, and by the humid chemical analysis. Illustrated 3 00

Fenwick & Baker—Subterraneous Surveying, with and without the Magnetic Needle. Illustrated 1 00

Fleisher (Emil)—A System of Volumetric Analysis. Illustrated 2 50

Fletcher (E. L.)—Practical Instructions in Quantitative Assaying with the Blowpipe. Containing also readily-applied blowpipe tests. For the prospector, miner and assayer 2 75

Frazer (Persifor)—Tables for the Determination of Minerals by Physical Properties Ascertainable with the Aid of a Few Field Instruments. Latest edition 1 50

Fresenius (C. R.) and Wells (H. L.)—A Manual of Qualitative Analysis with New System for Rules and Symbols. Illustrated 5 00

Fresenius (C. R.) and Cohn (Alf. I.)—A System of Instruction in Quantitative Analysis, with New System. Illustrated 12 50

Furman (H. Van F.)—A Manual of Practical Assaying, Determination of Metals, etc. Special assays, analysis of bullion ores, coal, water, gases, alloys, etc. Calculations and Tables. 390 pages 3 00

Geikie (A.)—Outlines of Field Geology, with Illustrations 1 00

Geikie (A.)—Class Book of Geology. Illustrated 1 10

Geikie (A.)—Text-book of Geology. A very exhaustive treatise on the matter.. 7 50

Gill (A. H.)—A Short Handbook of Oil Analysis 2 00

Hempfel (W.)—Gas Analysis. Methods for the analysis of gases. Translated from the German by L. M. Dennis 2 25

Hixon (H. W.)—Lead and Copper Smelting and Copper Converting 3 00

Hoffman (H. O.)—Metallurgy of Lead and Desilverization of Base Bullion. Illustrated with work drawings 6 00

Hussman (Geo.)—Grape Culture and Wine-making in California. Illustrated... 2 00

Hussman (Geo.)—American Grape-growing and Wine-making. Illustrated.... 1 50

James (Alfred)—Cyanide Practice 5 00

Johnson (J. C. F.)—Getting Gold. A practical treatise for prospectors, miners and students. Illustrated 1 50

Julian (H. F.) and Smart (E.)—The Cyanide Process 6 00

Kemp (Jas. F.)—Ore Deposits of the United States and Canada. The foremost work on economic geology 5 00

Kerl (B.)—The Assayer's Manual. A treatise on the Docimastic Examination of ores. Illustrated 3 00

Kolbe (Dr. H.)—A Short Text-book of Inorganic Chemistry. Illustrated 2 50

Krauch & Merck—Chemical Reagents; Their Purity and Tests 3 00

Kustel (G.)—Roasting of Gold and Silver Ores and the Extraction from Their Respective Ores without Quicksilver 3 00

Kustel (G.)—The Concentration of Ores of All Kinds. Including the chlorination process. With 120 lithographic diagrams..... 7 50

Lamborn (R. H.)—The Metallurgy of Copper; Seeking, Mining, Assaying and Working Ores of Copper..... 1 00

Landauer (A.)—Treatise on Blowpipe Analysis. Illustrated..... 1 50

Leach (A. E.)—Food Inspection and Analysis. For the use of public analysts, health officers, etc. Large 8vo, with 120 figures and 40 full half-tone plates $7 50

Le Blanc (Max)—Elements of Electro-Chemistry..... 1 50

Lechatelier and Boudouard—High Temperature Measurements..... 3 00

Le Conte (J.)—Elements of Geology. Illustrated..... 1 50

Lefferman (Henry)—Analysis of Milk and Milk Products. Arranged for chemists, dairymen and milk inspectors..... 1 50

Lefferman (Henry)—Handbook of Structural Formalæ..... 1 00

Lefferman (H.) and Beam—Select Methods of Food Analysis..... 2 50

Lieber (Oscar M.)—The Assayer's Guide; or Practical Direction to Assayers, Miners, Smelters, etc., for Tests and Assays of All Methods of Metals, Coal Alloys, etc. Illustrated..... 1 50

Lodge (W. W.)—Notes on Assaying and Metallurgical Laboratory Experiments.. 3 00

Louis (Henry)—Handbook of Gold Mining. A scientific yet practical exposition of the mechanical principles of stamp-mill and of the chemistry of amalgamation. Illustrated..... 3 50

Low (Albert H.)—Technical Methods of Ore Analysis. Illustrated. Cloth..... 3 00

Lunge (Geo.)—Sulphuric Acid and Alkali.

Vol. I—Sulphuric Acid. In two parts, not sold separately. 1200 pages. The two books..... 15 00

Vol. II—Salt Cake, Hydrochloric Acid, Le Blanc Soda..... 6 00

Vol. III—Ammonia Soda and Other Processes of Alkali Making..... 6 00

Lyell (Chas.)—Principles of Geology. This is one of the foundations of the science of Geology..... 8 00

Macadam (W. I.)—Tables for the Determination of Chemical Salts..... 75

Macadam (S.)—Practical Chemistry. Illustrated..... 1 00

Makins (Geo. H.)—A Manual of Metallurgy. Illustrated..... 6 50

McLead and Walker—Metallurgical Analysis and Assaying..... 4 00

McMehen (F. List.)—Tests for Ores, Minerals and Metals of Commercial Value.. 1 00

Meade (R. K.)—Chemical and Physical Examination of Cement. An elementary book of great use to the student..... 1 00

Meade (R. K.)—Chemists' Pocket Manual. A practical handbook, containing tables, formulas, methods, etc.; for the use of chemists, assayers, metallurgists, etc. 2 00

Meade (S. P.)—Elements of Chemistry. A work for high schools. Illustrated... 1 00

Mendeleff (D.)—The principles of Chemistry. A work of great importance. In two volumes..... 10 00

Michell (S.)—Mine Drainage. Being a complete and practical treatise on direct-acting underground steam-pumping machinery, with a description of the best-known engines. Illustrated..... 6 00

Miller (Alfred S.)—A manual of Assaying: The Fire Assay of Gold, Silver and Lead. In cluding amalgamation and chlorination tests. Illustrated..... 1 00

Miller (G. W.)—Mine Examiner's and Prospector's Companion..... 3 00

Mitchell (J.)—Manual of Practical Assaying. Illustrated with numerous tables in the text. Fifth edition..... 10 00

Moses and Parsons—Mineralogy, Crystallography and Blowpipe Analysis..... 2 50

Mott (H. A., Jr.)—The Chemist's Manual. A practical treatise on chemistry analysis, assaying, etc. Illustrated $4 00

Nason (H. B.)—Tables for Reactions for Quantitative Chemical Analysis..... 2 50

Normandy (A.)—Introduction to Chemical Analysis..... 4 50

O'Driscoll (F.)—Notes on the Treatment of Gold Ores..... 2 00

Okley (Dr. J.)—Analysis, Detection and Commercial Value of the Rare Minerals. 3 00

Olsen (John C.)—Text Book of Quantitative Chemical Analysis 4 00

Orton (J.)—Underground Treasures and Where to Find Them. A key to the ready determinations of all the useful minerals within the United States. Illustrated. 1 50

Osborn (H. S.)—A Practical Manual of Minerals, Mines and Mining. Containing suggestions as to the localities and associations of all the useful minerals. Illustrated. 4 50

Overman (Fred)—Practical Mineralogy, Assaying and Mining. With description of the useful minerals. 1 00

Overman (Fred)—The Moulder's and Founder's Pocket Guide. Illustrated..... 2 00

Overman (Fred)—Treatise on Metallurgy. Comprising mining and general and particular metallurgical operations. With many illustrations..... 5 00

Park (James)—Laboratory Instructions in Assaying and Practical Chemistry.... 3 50

Park (James)—The Cyanide Process of Gold Extraction. A text-book for the use of metallurgists and students..... 2 50

Peffer (E. S.)—Beet Sugar Analysis. A complete system of instructions for analysis in beet sugar factories..... 2 50

Percy (J.)—Metallurgy. The art of extracting metals from their ores. Introduction. Refractory materials and fuels. Revised and greatly enlarged edition. Numerous illustrations. 8vo. Cloth. London, 1875..... 12 00

Percy (J.)—Metallurgy. The art of extracting metals from their ores: Silver and gold. Illustrated. Part I. 8vo. Cloth. London, 1880..... 12 00

Percy (J.)—The Metallurgy of Lead. Including desilverization and cupellation. 8vo. Cloth. Illustrated. London, 1870..... 12 00

Peters (E. J., Jr.)—Modern American Methods of Copper Smelting. Illustrated.. 5 00

Philips & Bauerman—Elements of Metallurgy. A practical treatise on the art of extracting metals from their ores. Illustrated..... 9 00

Piggot (A. Snowden)—Chemistry and Metallurgy of Copper..... 1 00

Plattner—Manual of Qualitative and Quantitative Analysis in Blowpipe. From the German edition. With 1 plate and 87 wood-cuts. 8vo. 548..... 5 00

Plympton (Prof. Geo. W.)—The Blowpipe. A guide to its use in the determination of salts and minerals. Compiled from various sources. 12mo..... 1 75

Prescott (A. B.)—First Book in Qualitative Chemistry..... 1 50

Prescott (A. B.) and Johnson (O. C.)—Qualitative Chemical Analysis..... 3 50

Rammelsberg—Guide to a Course of Quantitative Chemical Analysis, Especially of Alloys, Minerals, etc..... 2 25

Randall (Prof. P. M.)—Quartz Operator's Handbook. New edition; revised and enlarged. Illustrated. 2 00

Remsen (I.)—Briefer Course in Chemistry..... 1 25

Remsen (I.)—Laboratory Manual..... 60

Redwood (Beverton)—Petroleum, Its Production and Uses..... 50

Redwood (I. I.)—Mineral Oils and Their By-Products. Including the recovery of acid and soda used in oil refining and a list of patents relating to apparatus and processes for obtaining and refining mineral oils $6 00

Reemlin (Chas.)—A Treatise on Wine-making. With illustrations..... 1 25

Richard (T. A.)—Stamp Milling of Gold Ores..... 2 50

Rickard (T. A.)—Recent Cyanide Practice 2 00

Ricketts (P. de P.)—Notes on Assaying and Assay Schemes. Latest edition. Revised and enlarged. Illustrated..... 3 00

Rixford (E. H.)—The Wine Press and Cellar. A manual for the wine-maker and cellarman. Illustrated, with tables..... 1 50

Roscoe and Schorlemmer—A Treatise on Chemistry. In 8 volumes. With many splendid illustrations.

Inorganic Chemistry.

Vol. I—Non-metallic Elements 5 00

Vol. II—Metals 5 00

Organic Chemistry; or the Chemistry of the Hydro-Carbons; Their Derivatives.

Vol. III, Part I 5 00

Vol. III, Part II 5 00

Vol. III, Part III 3 00

Vol. III, Part IV 3 00

Vol. III, Part V 3 00

Vol. III, Part VI 3 00

Roscoe (H. E.)—Lessons in Elementary Chemistry; Inorganic and Organic. Illustrated. 2 25

Roscoe (H. E.)—Spectrum Analysis. Six lectures and appendixes. With colored plates and illustrations. 9 00

Rose (T. K.)—The Metallurgy of Gold. Being one of a series of treaties on metallurgy, written by associates of the School of Mines. Illustrated..... 6 50

Ross (W. A.)—The Blowpipe in Chemistry, Mineralogy and Geology, Containing All Known Methods of Anhydrous Analysis and Instructions for Making Apparatus. Illustrated profusely. 2 00

Schimpf (W. H.)—Text-book of Volumetric Analysis, with Special Reference to the Volumetric Processes of the Pharmacopeia of the United States..... 2 50

Schimpf (Henry W.)—Text-book of Volumetric Analysis, with Special Reference to the Volumetric Processes of the U. S. Pharmacopeia..... 2 50

Schloremmer (C.)—A Manual of the Chemistry of Carbon Compounds; or Organic Chemistry..... 3 75

Shephard (J. H.)—Elements of Inorganic Descriptive and Qualitative Chemistry. Illustrated 1 25

Snively (J. R.)—A Handbook for Sugar Manufacturers and Their Chemists. Containing instructions in sugar-house control, the diffusion process, selected methods of analysis, reference tables, etc..... 2 00

Spencer (G. L.)—Handbook for Chemists of Beet Sugar Houses and Seed Culture Farms..... 3 00

Spurr (Jos. E.)—Geology Applied to Mining. Illustrated..... 2 00

Stillman (T. B.)—Engineering Chemistry; Gas Analysis and Saluation, Blast Furnace, Heating Value of Fuels, Lubrication, Purification of Water for Technical Purposes, Cement, etc..... 4 50

Stretch (R. H.)—Prospecting, Locating and Valuing Mines $2 50

Sutton (F.)—A Systematic Handbook of Volumetric Analysis, or Quantitative Estimation of Chemical Substances by Measure, Applied to Solids, Liquids and Gases. Illustrated 5 50

Thorpe (T. E.)—Quantitative Chemical Analysis 1 50

Trautwine (J. C.)—Civil Engineer's Pocketbook of Measuration, Surveying, Hydrostatics, Strength of Materials, Railroads, Excavations, etc. Revised and enlarged, with many illustrations 5 00

Tucker (J. H.)—Manual of Sugar Analysis. Including the applications in general of analytical methods to the sugar industry, with an introduction on the chemistry of cane-sugar, dextrose, levulose, etc 3 50

Urquhart (J. W.)—Electroplating and Electrotyping. A practical handbook. Illustrated 2 00

Van Cotta (B.)—Rocks Classified and Described. A treatise on lithography. Edition revised by author 5 00

Wagner (R. Von.)—Manual of Chemical Technology. Illustrated 7 50

Wanklyn (J. A.)—Milk Analysis. A practical treatise on the examination of milk and derivatives: Cream, butter and cheese 1 00

Wanklyn (J. A.)—Water Analysis. A practical treatise on the examination of potable water. Illustrated 2 00

Watt (Alex.)—Electro-Metallurgy 1 75

Watt (Alex.)—Electro-Deposition. A practical treatise on the electrolysis of gold, silver, copper, nickel and other metals and alloys 3 50

Wiley (H. W.)—Agricultural Analysis. In three volumes.
Vol. I—Soils 3 75
Vol. II—Fertilizers 2 00
Vol. III—Agricultural Products 3 75

Will (Prof. H.)—Tables for Qualitative Chemical Analysis 1 50

Williams (E. B.)—Manual of Lithology 3 00

Williams (Geo. B.)—Elements of Crystallography for Students of Chemistry, Physics and Mineralogy 1 50

Wilson (Geo.)—Inorganic Chemistry. With notations. Revised and enlarged. 8vo. Illustrated 1 75

Wilson (E. B.)—Hydraulic and Placer Mining 2 50

Wilson (E. B.)—The Cyanide Process 1 50

Wilson (E. B.)—The Chlorination Process. Containing lixiviation by chlorine solutions, preparations of ore-roasting furnaces, leaching processes, filtration, precipitation, refining, etc 1 50

Wohler—Handbook of Mineral Analysis. Illustrated 3 00

INDEX

A

Page

Absorptionmeters 62
Absorption Blocks 49
Absorption Papers 49
Acetometers 49
Acid Bottles 84
" Brushes 90
" Dishes 126
" Measures 159
" Pumps 198
" Trays 126
Acids 265
Adapters 50
Agate Mortars 181
Air Baths 73
" Pumps 198
" Testers 50
Albuminometers 69
Alcoholmeters 160
Alcohol Lamps 96, 168
Alembics 50
Alkalimeters 52
Amalgam Brushes 91
" Buckets 93
" Dippers 125
" Mortars 182
" Scoops 212
" Strainers 226
Amalgamated Plates 50
Annealing Cups 50
Annealing Cup Covers 50
Anvils 51
Apparatus, Absorption 62
" Arsenic 51
" Asphalt 52
" Babo 64
" Carbonic Acid 52
" Cement Test 53
" Centrifuge 54, 58
" Chlorine 59
" Coal Oil 161, 232, 248
" Desiccating 73
" Digesting 59
" Displacement 60
" Distilling 220
" Drying 73, 196, 244
" Electrolytic 60
" Elutriation 61
" Extraction 61
" Gas Analysis 62
" Gasogene 65
" Generating 65
" Iron 65
" Kipp 65
" Milk 66
" Nitrogen 67
" Soil 61

Page

Apparatus, Sterilizing 69
" Sulph. Hydrogen 64, 65
" Titration 96
" Urinary 69
" Wine 223, 251
Areometers 159
Arsenic Tubes 244
Asbestos Board 70
" Cloth 70
" Cord 70
" Fibre 70
" Gloves 154
Asphalt Apparatus 52
Aspirators 70
Aspirator Bottles 70
Assay Outfits 262
Azotometers 67

B

Bags, Rubber 70
" Sample 70
Balances 5 to 40
Balance Cases 48
" Riders 44
Barometers, Aneroid 71
" Mercury 72
Barometer Tubes 244
Bateas 73
Baths, Air 73
" Sand 74
" Water 74
Batteries 75
Battery Jars 75
" Screens 213
Bead Plates 109
Beakers, Glass 76-79
" Porcelain, etc 79
" Resistance Glass 77, 78
" Jena Glass 79
Bell Jars 79
Bellows 80
Bells, Electric 81
Binding Posts 81
" Screws 81
Blankets, Sluice 81
Blanks 81
Blowers, Gold Dust 81
Blowpipes 81-83
Blowpipe Apparatus 257
Blowpipe Sets 261
Borers, Charcoal 84
" Cork 84
Bottles, Acid 84
" Aspirator 70
" Balsam 84
" Cobalt 84

	Page
Bottles, Dropping	84
" Mixing	84
" Normal Solution	85
" Prescription	85
" Pressure	85
" Reagent	85-88
" Sample	88
" Specific Gravity	88
" Sterilizing	89
" Washing	240
" Weighing	89
Brazing Outfits	90
Brooms	90
Brushes of all kinds	91-93
Buckets	93
Buckskins	93
Bulbs, Rubber	94
Burettes	94-96
Burette Clamps	106
" Floats	96
" Tips	96
" Titration Apparatus	96
Burners, Alcohol	97
" Bunsen, etc.	97-100
" Hydrocarbon	101-103
Burner Attachments	103

C

Calipers	104
Calorimeters	104
Candlesticks	105
Caoutchouc	208
Carbons, Battery	75
Carboys	105
Carboy Stands	105
Cases, Balance	48
Casseroles	106
Cells, Porous	75
Cement Testers	53
Chains, Surveyors	178
Chamois Skins	106
Charcoal Borers	83
" Saws	211
" Slabs	106
Chemicals	265
Chisels	106
Chloride Calcium Jars	167
" " Tubes	244
Clamps	106
Clamp Holders	109
Clinometers	110
Coal Oil Stoves	225
" " Testers	232
Cobalt Glass	109
Color Test Plates	109
Coils, Induction	166
Combustion Boats	109, 192
" Foil	194
" Furnaces	109
" Netting	253
" Glass	154
" Tubes	245
Compasses, Pocket	109
" Surveyors	110-113

	Page
Compressors, Air	114
Condensers	114
Condenser Tubes	115
Cones, Platinum	192
Connectors	224
Corks	115
Cork Borers	84
" Extractors	116
" Plates	116
" Presses	116
Corkscrews	116
Covers, Crucible	118
" Glass	116
Cream Testers	66
Crucibles, Black Lead	117
" Charcoal	116
" Clay	118
" Iron, etc.	121
" Platinum	193
" Porcelain	120
" Sand	120
Crucible Racks	121
Crushers, Ore	122
Cupels	123
Cupel Moulds	185
" Presses	197
" Trays	242
Cups, Annealing	50
" Porous	75
Cutters for Glass	153
Cyanide Test Plant	123
Cylinders, Graduated	124
" Hydrometer	123

D

Deflatgrating Spoons	217
Desiccators	124
Dialysers	125
Diamonds	125
Diamond Scales	37
Dippers	125
Dishes, Acid	126
" Crystallizing	126
" Evaporating	126
" Lead	127
" Petrie	128
" Platinum	193
" Roasting	204
" Sugar	128
Dropping Bottles	84
" Tubes	191
Drying Apparatus	73, 124, 167, 197, 244
" Bulbs	196

E

Electrical Batteris	75
Emery Cloth	128
" Paper	128
Eudiometers	129
Evaporating Dishes	126
Evolution Flasks	134
Extraction Thimbles	132

F

Page

Faucets, Earthenware 224
" Glass 224
Figures, Steel 219
Files 129
Filters 129
Filter Apparatus 130
" Bags 130
" Blocks 49
" Paper 130
" Pumps 133
" Racks 133
" Rings 133
" Stands 227
" Thimbles 132
Finger Cots 134
Flasks, Boiling 134
" Evolution 134
" Filtering 135
" Fract. Distillation 136
" Florentine 202
" Jena Glass 137
" Litre 136
" Parting 135
" Polarizing 135
" Pressure 135
" **Resistance Glass** 136, 137
" Sugar 135
" Volumetric 136, 137
Floats, Burette 96
Foil, Metal 138, 194
Forceps 138
Fractional Distillation App. 136
Funnels, Agate 140
" Glass 139
" Porcelain. 139
" Rubber 140
" Safety 141
" Separating 140
Funnel Tubes 141
Furnaces, Assay 142, 146
" Bullion 149
" **Calkins** 146
" Combustion 109
" Electric 152
" Fletcher 143
" Smelting 143
Furnace Tanks 230
" Tongs 241

G

Gas Apparatus 59 to 65
" Bags 70
" Holders 153
" Stoves 226
Gasogenes 65
Gaugcs, Measuring 153
" Pressure 153
Gauge Glasses 153
Gauze, Wire 253
Glass Beads 153
Glass Cutters 153
" Plates 153
" Rods 154
Page
Glass Tubing 154
" Wool 154
Glasses, Magnifying 172
Gloves, Assayers' 154
Goggles 155
Gold Dust Blowers 81
Gold Pans 188
Graduates, Glass 155
" Porcelain 155
Grinders, Sampling 157
Grinding Plates 156
Grindstones 157

H

Hammers 158
Handles 158
Heaters, Water 251
Holders, Clamp 109
" Test Tubes 108
" Triangle 242
" Wirc 158
Horns, Mining 158
Horn Scoops 212
" Spatulas 216
" Spoons 217
Hour Glasses 159
Hydrometers 159
Hydrometer Jars 123
Hygrometers 165

I

Ignition Tubes..... 165
Incubators 165
Induction Coils..... 166
Infusion Pots 166
Ingot Moulds..... 184
Internal Revenue Sets..... 164

J

Jars, Anatomical 166
" Battery 75
" Chloride Calcium..... 167
" Hydometer 123
" Percolating 167
" Precipitating 167
" Specimen 167

K

Karat Weights 47
Kettles 168

L

Labels 168
Lactometers 162
Ladles 168
Lamps, Alcohol 96, 168
" Blowpipe 170
" Coal Oil 225
" Gas 97, 226

	Page
Lamps, Gasoline	169
" Parting	171
" Safety	171
Lamp Wicks	251
Lead Dishes	127
" Trays	127
Lenses	172
Letters, Steel	219
Levels	173
Level Glasses	175
Leyden Jars	175
Linen Provers	172
Liquor Thieves	230
Litmus Paper	175
" Pencils	175

M

Magnets	175
Magnifying Glasses	172
Mallets	175
Mattrasses	176
Measures, Capacity	176
" Graduated	155
" Linear	177
Mercury Troughs	244
Metre Measures	177
Microscopes	178
Microscope Covers	180
" Dishes	180
" Forceps	180
" Knives	180
" Needles	181
" Scissors	181
" Slides	181
Milk Testers	66, 162
Mineral Collections	264
Minim Glasses	155
Mining Bateas	73
" Horns	158
" Pans	188
Mittens, Assayers	154
Mixing Bottles	84
" Capsules	181
Mortars, Agate	181
" Diamond	181
" Glass	181
" Iron	182
" Porcelain	182
" Wedgewood	183
Motors, Electric	183
Moulds, Assay	183
" Bullion	185
" Cupel	185
" Ingot	184
Muffles, Clay	186
" Platinum	194
" Plumbago	187
Muffle Arches	187
" Reducers	187

N

Needles, Magnetic	187
" Microscope	181
Nippers	188
Nitrometers	64, 67
Nitrogen Bulbs	188

O

Odometers	188
Oil Cloth	188
" Testers	161, 248
Outfits, Assay, etc.	262
" Blowpipe	261
" Brazing	90

P

Pails, Mill	188
Pans, Miners	188
" Sampling	188
" Scale	189
Paper, Glazed	189
" Test	232
Pencils, Diamond	189
" Grease	189
" Litmus	189
Percolators, Glass	189
" Porcelain	189
" Tin	189
Picks	190
Pickle Pots	190
Picnometers	88
Pill Tiles	190
Pincers	138
Pipettes, Dropping	191
" Volumetric	190
" Weighing	191
Pipette Rests	191
Pitchers	192
Plates, Carbon	75
" Glass	153
" Porous	75
" Zinc	75
Platinum, Anodes, etc.	192
" Boats	192
" Cones	192
" Crucibles	193
" Dishes	193
" Foil	194
" Gauze	194
" Muffles	194
" Spatulas	195
" Sponges	195
" Spoons	195
" Tips	195
" Tongs	195
" Triangles	195
" Tweezers	195
" Wire	195
Plyers	196
Pokers	196
Policemen, rubber	208
Potash Bulbs	196

	Page
Presses, Cork	116
" Cupel	197
" Tincture	197
Prisms	198
Probangs	198
Proof Glasses	198
Pumps, Acid	198
" Air	198
" Filtering	133
" Vacuum	199
Pyrometers	201

R

Racks, Crucible	201
" Filter	133
" Test Tube	229
Radiometers	201
Rain Gauges	201
Receivers	202
Reduction Tubes	247
Registers	202
Resistance Ware	77, 136, 203
Respirators	202
Retorts, Copper	203
" Glass	203
" Iron	203
Retorts and Receivers	204
Retort Jackets	204
Riddles	213, 214
Riders	44
Roasting Dishes	204
Rods, Glass	154
Rolling Mills	205-207
Rolls, Pulp	207
Rubber Aprons	208
" Bags	208
" Cloth	208
" Policemen	208
" Scrapers	208
" Sheet	208
" Sleeves	208
" Stoppers	208
" Tubing	209
Rupert Drops	210

S

Saccharometers	163
Salinometers	162
Salinometer Pots	210
Sample Bags	71
" Bottles	85, 88
Samplers, Ore	210
Sampling Trays	210
Sand Baths	211
" Glasses	159
" Paper	211
Saws, Charcoal	211
Scales	5 to 40
" Architect, etc.	211
Scale Cases	48
" Pans	48
" Rests	48
Scissors	211
Scoopes, Amalgam	212
" Horn	212
" Sampling	212
Scorifiers	212
Scrapers	208, 212
Screens, Battery	213
" Ore	213
Separating Funnels	140
Sharpeners, Cork-borer	214
Shears	211
Shovels	214
Sieves	214
Silica Ware	254
Skimmers	216
Skins	93, 106
Slides, Microscope	181
Soldering Coppers	216
Soldering Iron Heaters	216
Spatulas	194, 216
Spec. Gravity Bottles	88
" " Hydrometers	159
Spectroscopes	217
Spirit Lamps	168
" Levels	173
Sponges, Mill	217
Spoons, Blowpipe	217
" Deflagrating	217
" Horn	217
Stamp Mills	218
Stamps, Steel	219
Stands, Burette, etc.	226
Sterilizers	69
Stills, Water, etc.	220
" Wine	223
Stirrers, Black Lead	223
" Glass	223
Stopcocks, Brass	223
" Earthenware	224
" Glass	224
" Porcelain	225
Stoppers, Rubber	208
Stoves, Alcohol	169
" Coal Oil	225
" Gas	226
Stove Wicks	251
Strainers, Mercury	226
Straining Dishes	226
Streak Plates	226
Sulph. Hydrogen Apparatus	64
Supports, Burette	226
" Filter	227
" Retort	227
Syphons	230

T

Tanks	230
Tapes, Steel, etc.	177
Testers, Gold	231
" Oil	232
" Wine	223, 252
Test Glasses	232
" Papers	232
" Tubes	233
Test Tube Brushes	93

	Page
Test Tube Racks	229
" " Tongs	108
Text Books	279
Thermometers, Asphalt	233
" Bath	234
" Brewers'	236
" Dairy	237
" Hot Bed	238
" Household	237
" Incubator	238
" Oven	236
" Self-registering	238
" Tank 236,	239
" Vulcanizing	240
Thermostats	241
Thieves, Liquor	230
Thistle Tubes	141
Tiles for Pills	190
Tongs, Crucible, etc. 194,	241
" Test Tube	108
Transit Instruments	113
Trays, Acid	127
" Bead	242
" Cupel	242
" Lead	127
" Sampling	210
" Scorifier	242
Triangles 194,	242
Tripods, Iron	243
Troughs, Mercury	244
" Pneumatic	244
Tryers	244
Tubes, Arsenic	244
" Barometer	244
" Calcium Chloride	244
" Combustion	245
" Condensing	246
" Connecting	246
" Distilling	246
" Dropping	191
" Drying	244
" Explosion	247
" Filtering	247
" Funnel	141
" Ignition	165
Tubes, Nessler	247
" Reduction	247
" Test	233
" Three-Way	246
" Washing	248
" Weighing	89
Tweezers	138

U

	Page
U Tubes	245
Ureometers	69
Urinometers	69

V

	Page
Vials, Homœopathic	248
" Naturalists'	248
Viscosimeters	248
Vises	249

W

	Page
Wash Bottles 249-	250
Watch Glasses	250
" Glass Clamps	250
" Springs	250
Water Baths	74
Water Hammers	250
Water Heaters	251
Weighing Bottles	89
" Tubes	89
Weights	40
Wicks	251
Wine Test Apparatus....223, 251,	252
Wire Cloth	253
" Holders	253
Woulff Bottles	254

Z

	Page
Zinc, Battery	76
Zinc Shavings	278

ZINC SHAVINGS

We are the largest producers of Zinc Shavings on the Pacific Coast, and our Shavings are made by our own **exclusive process.**

All competent cyanide operators know that a **tough, bright, untarnished** Zinc Shaving of uniform gauge will do **much more work** than one which has been overheated during the process of manufacture. The heating oxidizes the shaving and makes it rotten, and very much reduces its precipitating power. A shaving cut from zinc, upon which water has been sprayed to keep down the temperature while being cut, is also **very inferior** in quality and power.

All cyanide operators also know it to be true that it is imperative to keep Zinc Shavings dry until used to obtain satisfactory results.

The Zinc Shavings we offer for sale are **always tough, bright** and **uniform,** because by our special process the zinc **never** becomes overheated while being cut, neither do we keep the zinc cool by spraying or wetting the zinc. A poor Zinc Shaving is dear at any price.

We furnish these first-class shavings in four grades: Coarse, medium, fine and extra fine. We pack them in tight wood barrels (about 175 pounds per barrel); also in (50 pounds) tin cases, tightly soldered.

Our prices are the lowest possible consistent for the grade of zinc shavings which we supply. Quotations on application. Special inducements on contract orders. Write for particulars.

Our shavings are **free** from waste and dirt.

The capacity of our Zinc Shaving plant is such as to allow us to furnish our customers freshly cut shavings on short notice.



Showing Advance Combination Furnace
No. 10

with

Challenge Hydro-Carbon Burner and 10-Gallon Tank

Set up ready for use

THE BLAIR-MURDOCK CO., PRINTERS
68 FREMONT ST., SAN FRANCISCO